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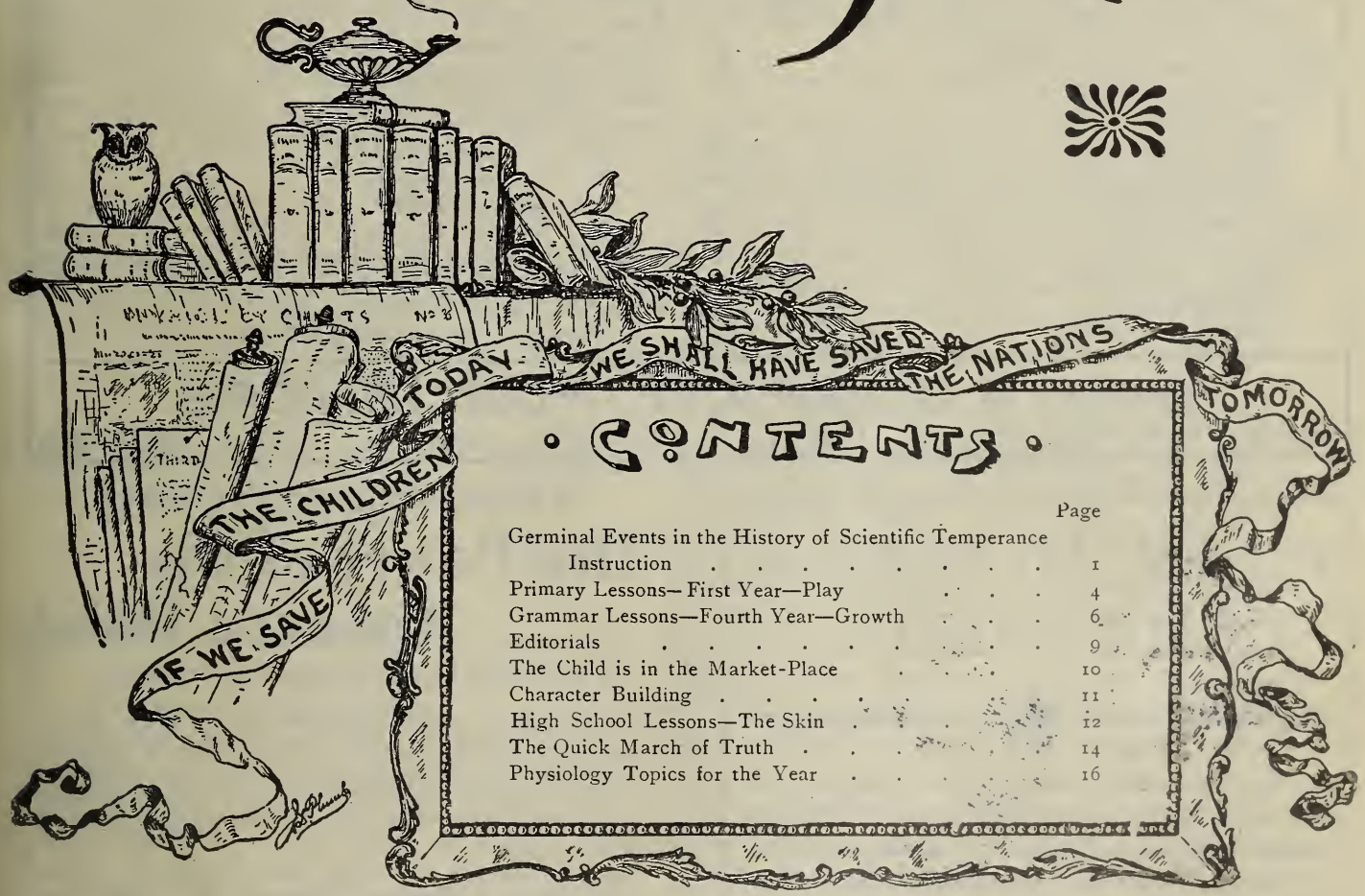

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MARY H. HUNT, EDITOR

VOL. XV. NO. 1
SEPTEMBER, 1905

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It is a reproduction of the fine photograph of Mrs. Hunt which appeared on the first page of the December JOURNAL. We hope many of our readers will avail themselves of this opportunity to secure one of these excellent pictures of the leader of Scientific Temperance for their local schools.

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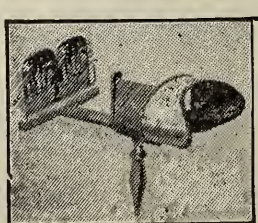

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School Physiology Journal

Vol. XV *BOSTON, SEPTEMBER, 1905* *No. 1*

RIGHT ABOUT FACE

BY MARY D. BRINE

"NOW, right about face!" September cries.
"Right about face, and march!" cries she;
"You, Summer, have had *your* day, and now,
In spite of your sorrowful, clouded brow,
The children belong to *me*.

"Come, fall into line, you girls and boys,
Tanned and sun-burned, merry and gay;
Turn your backs to the woods and hills,
The meadow ponds and the mountain rills,
And march from them all away.

"Are you loath, I wonder, to say farewell
To the summer days and the summer skies?
Ah! the time flies fast, and vacation is done;
You've finished your season of frolic and fun;
Now turn your tardy eyes

"Toward your lessons and books, my dears.
Why, where would our men and women be
If the *children* forever with summer played?
Come, right about face," September said,
"And return to school with me."

—*Harper's Young People.*

GERMINAL EVENTS IN THE HISTORY OF SCIENTIFIC TEMPERANCE INSTRUCTION

BY MARY H. HUNT

THE hold alcohol has upon the human race is based on an entire misapprehension of its real nature and effects.

This is due to the fact that through its narcotic action on the nervous system it seems to be what it is not, and to do what it does not. By benumbing the nerves that report to the drinker's consciousness his real condition, it seems to give him strength when it is reducing his muscular ability; to give him courage while it is only making him foolhardy; to make him wise and witty when it is making him silly, inefficient, stupid, and inclined to criminal action.

Through the ages, people have believed that, moderately taken, alcoholic drinks are a safe luxury, while it is their nature when taken even in small amounts to create an uncontrollable desire for more that, gratified, ruins the drinker, his children, and his children's children through the unrelenting laws of heredity. Thus through the ages alcohol, as a deceiver, has enslaved and destroyed individuals and families.

Through enervating that achieving ability and character that make a people strong and resourceful, alcohol has been and is a powerful factor in the downfall of nations. As a cause of degeneracy it today outranks all other perils to that rule and reign of the Christ spirit in human life and society which we call modern civilization. And all this peril, loss, and misery rest at the start on misconception, error as to fact, due to mistaking seeming results for the real effects of alcohol when used even in so-called moderation.

DISCOVERIES OF SCIENCE AS TO THE REAL NATURE AND EFFECTS OF ALCOHOL

But evil has its limitations. God's plan for the overthrow of alcohol as a destructive agency in human life and affairs is seen in three events or movements that may be called germinal. The first of these is the introduction into the study of the real, not seeming, nature and effects of alcohol, of the exact methods of experimental research and observation that have characterized the scientific work of the last fifteen or twenty years.

As a result of these methods, Professors Schmiedeberg, Bunge, Fick, and others of Germany, Richardson and Kerr of England, and Drs. Willard Parker, N. S. Davis, and A. B. Palmer in America discovered and taught that alcohol is not a food, not a stimulant that adds to strength, but a narcotic poison to human health, life, and efficiency. By the same methods, Professor Pasteur of France discovered that alcohol, instead of being as was supposed a good creature of God, self-generated in fruit juices and grain solutions, is the product of man's manipulation of the laws of decay whereby he changes a food to a poison. These discoveries and others that have followed are to prove the ultimate death-knell of alcohol as a beverage.

COLLECTION OF SCIENTIFIC FACTS CONCERNING ALCOHOL

Moral reaction against the evils of intemperance had prepared a cordial reception for these truths by a limited number. But if they are to reconstruct popular intelligence and habits they must reach the last man and woman in every avenue of life and before the alcoholic

appetite is formed; that is, the future men and women must be taught these truths in childhood. To make this possible, somebody must gather for dissemination these scientific truths from the various contributing sciences from which they are derived, such as anatomy, physiology, hygiene, chemistry, therapeutics, toxicology, bacteriology, pathology, pedagogy, and psychology including child study.

Learned men, professors in great universities should do this work, we should say. But note how unlike human methods were God's plans in instituting a world educational movement against this greatest enemy to the coming of His kingdom in human hearts.

It was upon a woman in America that His spirit came, moving her to collect and plan for the dissemination of these truths, and it was upon a great company of women banded together in the Woman's Christian Temperance Union that His spirit came, moving them to carry these truths to all the people through the agency of the public schools. "The Lord gave the word, great was the company of them that published it." True, the searcher for these truths had had scientific training, and with it also something of that God-given compassion that makes "seeking to save" the impelling passion of the chosen workers in the Master's vineyard, but well she knew that unless she was in reality called to this work she would find it to be "the seat perilous."

The moderate drinker, the conscienceless traffickers in the drink, and the honest conservative doubter are always ready to challenge every claim of science against alcohol, and each of these claims must be defended by positive proof. Hence, for years, this searcher has kept up an exhaustive examination of the work of experimental and clinical observation on every phase of this subject in all lands, going to the depths for the last evidence for every truth, and deeper still to find if there is support for the critics' objections.

Through the "Index Medicus," medical magazines, and medical libraries, with her corps of searchers, cataloguers, and translators, she has brought together the gist of every important book or paper published on this subject. These are all on file, topically arranged for ready use. This clearing-house of ready information was at her request, in 1904, adopted under the name of the Bureau of Scientific Temperance Investigation by the National Woman's Christian Temperance Union, and its author was named the Director of the Bureau.

DISSEMINATION OF THE SCIENTIFIC TRUTHS CONCERNING ALCOHOL

What has this Bureau done for this and other countries? When objectors to the passage of the temperance education laws have said there was no definite scientific truth to teach concerning the nature and effects of alcoholic drinks, this Bureau has furnished the refutation for this mistake without which the public school temperance education which is helping to make us the most sober of the great nations would not have been compulsory as it now is throughout the entire country; nor would other nations as now be following our example in this matter.

Without this collection of the investigations of the laboratories and other researches of the scientific world on the alcohol question translated into English, there would not have been a storehouse of truth that *proves* total abstinence to be the plain teaching of science, to draw from for the school text-books for the 22,000,000 American children of school age who are now under temperance education laws.

Without the compilations of this Bureau, we should have lacked the ready defense that has shown the attacks groundless which have been made upon the truths against alcohol that are not only taught in our public schools, Sunday schools, Loyal Temperance Legions, from the pulpit and temperance platforms, but that are the basic reasons for prohibition of the alcoholic traffic.

The truths collected by this Bureau made possible the publication of the pamphlet, "An Appeal to Truth", which exposed the falsity of Professor Atwater's claim that he had proved alcohol to be a food. Without the work of the Bureau the "Reply to the Committee of Fifty" could not have been written. This "Reply" shows that all the costly experiments of that Committee, conducted through ten years, instituted to prove the indorsed text-books inaccurate, when honestly considered, proved them to be accurate, and that there is no safety in moderate drinking. "The Reply" was made a government document by unanimous vote of the United States Senate, February 27, 1904.

If we could not have definitely disproved the charges of the Committee of Fifty and those of other committees under various names, practically sub-committees of the Committee of Fifty, it is impossible to estimate how heavy would have been the blow dealt by them to the total abstinence teaching and to hygienic habits that are essential elements to individual and national greatness.

Again, human wisdom would have selected a renowned scientific man or body of men to have proved and exposed the fallacies ot these attacks; but that the majesty of truth might be more majestic and self-impelling, He who said, "I am the Truth," selected for this service one

whose personality would not overshadow the message of the great laws of nature on this vital question.

This Bureau of Investigation has gathered the body of truths from which are selected the facts that must be taught to guide the formation of such physical habits as are essential to a sound national physique, including the truths which correct popular fallacies and that warn against beginning to drink, and which are summarized in what we call our *American Course of Study* in temperance physiology, which is in successful use in this country.

Providence seems to have ordained that what the public would accept as the strongest stamp of accuracy should be put upon the truths to be taught the children of this age on this vital subject. Hence, when a year and a half ago the entire medical profession of the United Kingdom of Great Britain and Ireland petitioned for such public school study of hygiene and temperance as we have here in America, a committee of their number, among them some of the most distinguished scientific men in the English-speaking world, recommended to the public schools of England, Scotland, Ireland and Wales the *American Course of Study* as containing the topics that must be taught to save a nation from degeneracy, and courteously stated on the title page of their scheme of topics that it is based on the scheme prepared for the schools of the United States of America. Thus the Bureau of Scientific Temperance Investigation, through its collected facts, is serving the English-speaking world.

Hope Cottage, Hyde Park, Mass.
The birthplace of the temperance education movement.

Endurance is the crowning quality,
And patience all the passions of great hearts;

These are their stay, and when the laden world
Sets its hard face against their fateful thought,
And brute strength, like the scornful conqueror,
Clangs his huge mace down in the other scale,
The inspired soul but flings his patience in,
And slowly that outweighs the ponderous globe—

One faith against a whole earth's unbelief,
One soul against the flesh of all mankind.

—LOWELL.

CAREFUL TOMMY

"Tommy!" cried Tommy's mother from the window, "didn't I tell you not to sit down on the damp ground?"

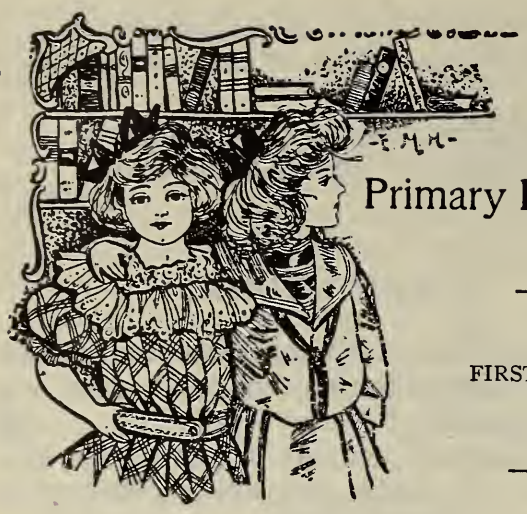
"Yes, mamma," retorted Tommy, "I'm not doing it. I wiped the grass with a towel before I sat down.—*Pittsburg Press.*

NEW SCIENTIFIC TEMPERANCE LEGISLATION

THE legislature of the Bahama Islands has entered the long line of state and provincial law-makers that have made temperance instruction in the schools compulsory. The news comes through the Rev. E. O. Taylor who is just back from a lecture trip through that region which has helped to secure this result. The passage of the law, however, is only the first step. Unless they provide a suitable course of study and text-books for pupils' use the law will be a dead letter.

The same mail brings a letter from the Transvaal where Agnes Slack, of England, has obtained from the Acting Director of Education the promise of incorporating temperance instruction into the educational code which is soon to be revised.

"Along the roadside, like the flowers of gold
That tawny Incas for their gardens wrought,
Heavy with sunshine droops the golden-rod,
And the red pennons of the cardinal-flower
Hang motionless upon their upright staves."



Primary Lessons

FIRST YEAR

PLAY

INTRODUCTION

AT the beginning of the school year, the primary teacher often takes into her charge as many as fifty active little beings with limitless possibilities before them. For five hours in the day it is her part to direct these restless bodies and rapidly developing minds.

The teacher ought to realize that all parts of a healthy child's body need exercise for growth and development. This is just as necessary as food, and the instinctive love of play is Nature's provision for meeting the need. If the teacher would do her best work for the children, she will not repress this activity but, instead, will try to guide and direct it.

The child, when he comes to school, is practically unaccustomed to restraint of any kind. To sit still for ten minutes is painful and harmful to him. What shall the teacher do? Her task is plainly so to direct his natural activity as to teach him to control himself and to use his limbs wisely. He is like a playful animal. She must lead him along the paths of gentleness, of politeness, of soft speech, and attractive manners.

In the group before her there will probably be some who do not have proper home training. Such little ones have heard too often the impatient "Do keep still," or "Run out in the street and play." The street is not the place for learning gentle speech or sweet manners. Here, then, besides the opportunity to impart useful facts, the teacher has the chance to develop in the child self-control and proper bearing.

Hence, we will suppose she begins the lesson by saying to her class

(1)

PLAY OF ANIMALS

Boys and girls are fond of play.

Do you know anything else which plays?

A child answers that he has a dog at home which plays.

How many children have dogs? Do they all play? Do they play most when they are old or when they are young? What sort of games does a dog play?

He chases a ball or swims in the river for a stick. (Show picture of dog.)

What other animals like to play?

The cat and kittens.

What does kitty play? Did you ever see her chase a spool? What does your kitty play with?

The cat is very graceful—very soft in her movements—runs very quickly. (Picture of cat.)

What little animal plays in the trees?

The squirrel.

How does the squirrel look? How can he jump so easily from branch to branch? Notice his tail.

Tell about other animals that you have seen play.

It is good for animals to play.

Do you know why? They would not grow strong unless they did.

Have you ever seen baby kick his little feet and toss his hands? That is play for baby, and it makes him strong.

Boys and girls need to play. You must play a great deal in order to grow strong.

(2)

PLAYS FOR BOYS AND GIRLS

When it rains and you can not go out of doors what do you do? Do you ever play house? Tell me how you play? Have you a a doll and a doll house? What do you do with them? What other toys do you have to play with?

What else do you play indoors? How do you play school?

When the sun shines where do you play? Why do you like best to play out of doors? What kind of games do you play there?

When you jump rope, how do you feel after a few minutes? You must never try to jump as long as you can. Do not jump more than five or ten times without stopping.

(3)

GAIN FROM PLAY

When you are playing house and go to call on your neighbor, how must you act? Why must you always be polite? What is politeness?

If you always try to be helpful to other people you will be polite.

What should you say when you meet your friend? When you leave? How should you

speak, loudly or softly? Why? How should you step? Why should you not stamp and make a noise?

When you are outdoors what can you do which you would not do inside? Why is it all right to shout and run outside when you should speak gently and step softly indoors?

When you run and jump and play outdoors, how do you feel? What makes you feel good?

Did you ever see a plant that lived in a dark corner? How pale and weak it was.

Children who stay in all day are also weak and pale. We get health and strength from playing outdoors? If you run races every day for a week you can run farther on Saturday than on Monday. If you play marbles every day you can play better at the end of the week. Why? Ability to do a thing well we call skill.

If John played outdoors every day, and had a kite and hoop, and ran races, while James stayed in the house and watched him through the window, which one would grow faster? Which one would have red cheeks, and which white ones? Which one would have a better time? You must be sure to play outdoors every pleasant day, if you want to be well and strong.

"A little work and play and sleep,
That's the way the children grow,
Don't you know."

(4)

SENTENCES

To be written on the board, then read and copied by the children.

My cat plays.
The dog plays.
I like to play.
We play ball.
Play makes me grow.

(5)

GAME

Now, we'll play a game. We must remember that this is indoors and we must speak gently and walk softly. We will make believe that we are picking apples.

First, we go to the orchard where apples grow on trees. (Children march softly about room.)

Here are the apples. Let us pick them. (Children pretend to pick fruit from branches overhead and place them in baskets at their feet.)

Now we'll take them home. (March around the room again and back to seats.)

We will give them to mother. (Motion of taking from basket and putting on desk.)

Let us help mother make apple sauce for supper. (Teacher pares and cuts in pantomime and children imitate.)

We will put the apples on the stove to cook. When they are done, we pour the sauce into the dish, (motion of pouring and putting into dish) and set it away to cool.

(6)

SONG

See the apples ripe and red!
They are hanging overhead.
Let us pick them as we play,
On this lovely autumn day.

THE OTHER WITNESS

"Roy," said the teacher in the opening exercises on the necessity for obedience, "if your mother tells you to get some wood, and you were to go out to some place where she couldn't see you, who would still see you?"

"Dad," says Roy, laconically. — *Little Chronicle.*

A DOMESTIC TRAGEDY

BY LUCY FITCH PERKINS

My doll, my doll, my Annabel!
She's really feeling far from well—
Her wig is gone, her eyes are out,
Her legs were left somewhere about.
Her arms were stolen by the pup,
The hens ate all her sawdust up;
So all that's really left of her
Is just her clothes and character!

Grammar Lessons

FOURTH YEAR

GROWTH DEPENDENT UPON FOOD AND DRINK

SYMMETRICAL development of the body, as well as good health in adult life, depends very greatly upon the manner in which a child is nourished during the earliest years.

Systematic training in physical culture will correct a number of evils, but nothing can quite overcome the effects of improper or ill-prepared food eaten as a regular diet during the period of childhood. Many a thin-limbed, hollow-chested person owes his or her condition to lack of knowledge in this respect, and crooked limbs and bad teeth may be traced in many instances to the same source.

Not all mothers understand what is best for the children from a hygienic point of view, and some of them rely almost entirely upon custom, or upon tradition, which, like custom, is valuable or not according to circumstances. Other parents are foolishly indulgent and permit their children to do as they please in the matter of food and drink as in other things.

Much may be done by the tactful teacher in such cases. She can lead the children to know for themselves, and in many instances her instruction will reach the parents through the children. She has the men and women of the future in her own hands for five hours every day. They are enthusiastic over any study which is rightly presented, and they are usually very proud of the knowledge they have acquired. Earnest and faithful instruction as to the kinds of food and drink to use and the kinds to avoid will be mentally assimilated by them to an extent hardly believable by people who have never been students of children.

NEED OF FOOD

Direct the attention of the class to plants of the same kind but of different sizes. Pansy or geranium plants are easily obtained and often they will be in the schoolroom window boxes.

What has caused the difference in size between the large geranium and the small one? The larger one has had a longer time to grow.

A number of days previous to giving this lesson, bring into the schoolroom two plants of the same size. Instruct the children to water one each day, and to neglect the other.

When the time for this lesson arrives, ask why one plant is green and healthy and larger than when it came, while the other is shriveled and the leaves are dropping off.

They will understand that the dying plant is starving to death, when you explain that much of the food necessary to its life is in the earth and can not be absorbed until dissolved by water.

Ask the children how much taller they are now than when they were measured last year. They can tell more or less accurately by thinking of the clothes they have outgrown. Measure one or two pupils and compare their height with that of last year, if, as is probable, the teacher has last year's measurements. Tell the other pupils to get some one at home to measure them, and bring the figures to school next day. Then, as you read off last year's list, each child can find how much he has grown in inches.

The healthy plant has grown not only in height but in size, and its leaves are larger. The plant has grown all over.

Do children grow all over, too? What about their outgrown clothes? These are not merely too short; they will not meet around the body. The sleeves are too small, and last year's shoes will not go on.

How many boys find that last year's hats are too small for them now?

What is the reason for this change? The food that you have eaten has had a great deal to do with bringing it about. Good food will nourish the whole body, and make each part grow as it should.

KINDS OF FOOD

Plant some grain seeds in wire netting tied over a tumbler of water, and have the children watch their growth.

Ask why the plants after a short time turn yellow and die. Why do they not grow so tall as the grain in the fields?

How would you like to have only one kind of food to eat? How many think one kind would be enough to keep the body growing?

Our plant that almost starved to death because we did not give it any water had one kind of food, for plants get one kind from the air. The grain plants need more than they can get from water and air, and different kinds of food are necessary for us in order to keep all parts of the body growing.

Write the names of some of the parts of the body, as bones, muscles, and nerves, on the blackboard.

Show the children where to find the page in their text-books that tells what foods will make strong bones and teeth. Let some one read it aloud and afterwards have all write the names of these foods on the blackboards or on paper.

In addition to oral instruction, children usually begin the use of text-books in this grade; but the printed page is a mystery to the child until he has been shown how to use it.

The wise teacher will impart this knowledge little by little. Always give page and paragraph at first, and have all passages read aloud, and explained if necessary, before being studied by the class. Later on, show the children how to find from the index in their books any topic or chapter to which you wish them to refer.

Why is it important that we should have strong muscles? What kinds of food will give us such muscles? Help the pupils to find the names of such foods in their text-books.

How much meat is necessary? How often should children eat it? Name some animals that eat mostly meat. Name others that almost never eat it. Which class is more gentle?

Too much meat is bad for people. It is likely to make them bad-tempered.

People who work a great deal in the open air need more meat than people who work indoors. Why?

Grown people need more than children. Why?

What foods keep the body warm?

What foods are more cooling?

Write out a list of foods that would make a good dinner for St. Valentine's Day; for the Fourth of July.

Some foods are not good for us because they are hard to digest. Who can name some of these foods? Give the children the page in the text-book that tells of such foods, and have it read aloud.

We should eat foods that will help us grow.

NEED OF DRINK

Call attention to flowers that have been kept in water and are therefore fresh, and to others that have been allowed to fade for lack of water.

How do the fields and gardens look when there has been no rain for a long time? They are parched and dry, because every plant needs water.

"Let heaven this one rich gift withhold,
How soon we find it is better than gold,
Beverage of life, health-giving water."

What would happen to a pet canary if it could get no drink?

Why do children get thirsty?

Our bodies would soon be parched and dry if we could get no drink. We could not live much longer than the poor plant that we treated so unkindly, if we had no water to drink.

GOOD DRINKS

The birds and animals have bodies that are like ours in many respects. They have muscles, bones, and nerves which must have food and drink to make them grow. What is the only thing they will drink? What teaches them to choose water? Does instinct ever direct them wrongly?

What is the best drink for children and every one?

Where does our drinking water come from? Why is it pure?

There is another drink that is very good for children. It is more a food than a drink, however, for it feeds every part of the body. Young animals take it as food, and it is the only food they need. Can any one think what it is?

Who can think of a nice drink for a cold day? Cocoa is good for us.

Who can think of a cool drink for a hot day? Lemonade is good. It is made from fresh fruit.

HARMFUL DRINKS

If Tommy holds his hand in a pail of ice-water for a short time, his hand will ache with the cold. His stomach is much more sensitive than his hand, and water that is very cold to the touch is likely to make the stomach ache. If very cold water is drunk at meal times it will delay the digestion of the food.

There is another reason why we should not drink water that contains melted ice. The ice may not be pure. You would not care to drink a glass of water that had been standing in a dusty room, yet the water might *look* pure. Ice which is cut from lakes or ponds may sometimes be impure.

If any one must drink very cold water, it is well to keep a bottle filled with pure water in the ice-chest.

Do you think it is a good plan to drink from brooks, or from pools beside the road? Why not?

Turn to the page in your books that tells about tea and coffee. Read it. Do you think these are good drinks for children? Why not? How do these drinks affect the skin?

There are other drinks that are bad for everybody.

What is beer made from? How do you know that it is harmful, when it is made from grain which is good to eat?

Turn to page — in your book, and see if you can answer this question.

James, you may read aloud what you find on this point.

All the other pupils look on your books while James is reading and see if he gives the right answer.

If you think he does not, raise your hands and tell what you think he has left out.

Will beer help those who drink it to grow strong and well?

Turn to page — and find what your book says.

Charlie, you may read this time, and all the class may turn to the same page to see if he gives the right answer. Raise your hands if you think he does not.

You are right. Beer never helps the body to grow.

It hinders the growth and dulls the brain.

Even a very little beer may make one want more of this drink until he can not let it alone.

AUTHORITATIVE QUOTATIONS

BEER-DRINKERS CAN NOT RESIST DISEASE

It is difficult to find any part of the confirmed beer-drinker's machinery that is doing its work as it should. This is why their life-cords snap off like glass rods when disease or accident gives them a little blow. This is not mere opinion; it is a well-settled, well-recognized fact. Physicians and insurance companies accept this as any other undisputed fact of science.—S. S. Lungren, M. D., Toledo, Ohio.

APPEARANCES NOT TO BE TRUSTED

The injury which beer does to health is not so easily seen as is the injury done by whiskey or brandy. The whiskey-drinker's appearance easily betrays him. But think of the round, contented face of the true beer-drinker! Does he not look as if he were in good health? How deceitful this appearance is, is only learned little by little as the alcohol in the beer, combined with the large amount of fluid, accomplishes its destructive work on stomach, heart, blood-vessels, liver, and kidneys.—Rudolf Wlassak, M. D., Vienna.

BEER-DRINKING IMPAIRS THE BRAIN

Persons under the influence of alcohol after taking no more than three-fourths of a liter of beer, showed impairing of perception, manifested by the omission of letters which they were asked to name at sight and by naming others incorrectly.—Johannes Bresler, M. D., Kraschnitz.

BEER-DRINKING TENDS TO INJURE THE LIVER

The liver is the great laboratory, the workshop of the body. Any derangement of it means the derangement of all the rest of the vital machinery. There can be no health anywhere when the liver is out of order. Beer-drinking overloads it, clogs it up, producing congestion, and permanently cripples it.—W. T. Ridenour, M. D.

"The period of life is brief,
'Tis the red of the red rose leaf,
'Tis the gold of the sunset sky,
'Tis the flight of a bird on high.

"But one may fill the space,
With such infinite grace
That the red will tinge all time;
And the gold thro' the ages shine;
And the bird fly swift and straight
To the portal of God's own gate."

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"Sow with a generous hand,
Pause not for toil or pain,
Weary not through the heat of summer,
Weary not through the cold spring rain,
But wait till the autumn comes
For the sheaves of golden grain."

THINGS THAT WILL NOT STAY UNSAID

THE opening of another school year brings to you, school officials and teachers, new opportunities for guiding and shaping the lives and characters of those who are to make or mar the future destiny of this nation with its wide spread influence upon the human race.

The telegraph, the telephone, and rapid transportation have made one neighborhood of the twentieth century world. Hence, beyond the walls of your schoolroom, through the occident and orient the results of your faithfulness or unfaithfulness will be ultimately felt.

OUR RESPONSIBILITY TO THE FUTURE

The part this country has just taken in the question of peace in Asia, instead of elating us, should lead us to feel our responsibilities to our own future and to that of the world. Just as at one time in human history the question what sort of a man was a Roman was one of world-wide importance, so, today, the success or failure of Americans as a people in living up to the ideals of sobriety, achieving ability, liberty, and justice which we are supposed to represent is a question not without its effect upon the civilization of the world. Alcohol with its related vices was a contributing cause to the degeneracy of the Romans. The dark ages followed the collapse of Rome, which was the inevitable consequence of the degeneracy of its people.

One of England's greatest physicians, Sir Frederick Treves of London, Surgeon to the King, recently said: "Alcohol is an insidious poison which has only one antidote, alcohol again." Another voice from Europe says, "We must exterminate alcohol or it will exterminate us." This is a truth every nation, our own included, should write on its escutcheon.

NECESSITY OF EDUCATION

The statutes of this nation say that the evil nature of alcohol and other narcotics shall be taught in connection with the laws of health to the pupils in all the public schools of the United States. Just as surely as light dispels darkness will this education save us as individuals and as a nation from alcoholic and other narcotic degeneracy if this study is thoroughly pursued. An occasional talk against the moral evil of drinking will not do it, any more than a homily about arithmetic will teach the children how to add, subtract, and divide.

If your pupils as individuals, and if we as a nation are not to be "exterminated by alcohol" and other narcotics, the physiological reasons for obeying the laws of health concerning these substances and all matters of hygiene must be taught as a progressive, systematic study, from the first year of the primary for at least 30 or 40 lessons per year through the grades to the end of the first year in the high school, with well graded text-books in the hands of pupils who have text-books in other subjects, and with the same examinations for promotion from grade to grade as in other studies.

When superintendents of schools or school boards are asked to adopt as a working schedule the International Course of Study in temperance physiology which shows the teacher what should be taught in each grade and how, they are asked to provide that the greatest curse of the earth today shall be exterminated instead of its exterminating their pupils and our nation.

CONSEQUENCES OF NEGLECT

If the boys in your school are smoking cigarettes, it is *prima facie* evidence that some school superintendent or school board is not without responsibility; for if this instruction against the cigarette had begun with the first primary year, and had been kept up on the foregoing plan, these children would have exemplified that teaching. Today, the fumes of their cigarettes tell with pitiful prophecy of the coming results of somebody's official neglect, a cruel wrong to these little fellows and to that larger public which has a right to expect the schools to teach the children the peril in the deadly cigarette.

What some school men call "incidental instruction at the psychological moment" is beginning too late. It means lecturing the boy after he is caught smoking, and involves the more hopeless work of reformation instead of the hopeful one of formation.

If the pages of future historians shall record, which God forbid, that, failing to exterminate alcohol through public school education, alcohol exterminated the great American republic, the honest historian will say that this came, not because the teachers in the schoolroom were not ready to do their part in teaching temperance physiology, if it had been assigned a place in their regular, systematic school work, to be tested by examinations with time for this teaching as was given to other studies; but it came because of the failure of school officials to provide for what the law required.

THE CHILD IS IN THE MARKET-PLACE

AN APPEAL TO SCHOOL SUPERINTENDENTS AND SCHOOL BOARDS

THE laws of America require the public school study of the nature and effects of alcoholic drinks and other narcotics as a part of physiology and hygiene, but do not explain what the nature and effects are. This is left for the text-books on these subjects to state, hence, school superintendents and school boards in choosing these text-books practically decide what the children shall learn on these subjects.

"'Right about face! September cries,
'And return to school with me.'"

Such boards are charged with the grave responsibility of deciding whether the children shall be taught the whole truth, plainly adapted to grade, that will give them the full physiological reasons for obeying the laws of health, including those that teach total abstinence from alcoholic drinks and other narcotics, truths that will fortify them to meet successfully the temptations of life, or whether these little ones shall be given evasive, indefinite teaching that will not warn them against the beginning to drink and to smoke that leads to ruin.

A scheme of topics that the schools should teach on these subjects to prevent individual and national degeneracy has been approved by the advocates of this form of education in this country and Great Britain.

All text-books that conform to this scheme are indorsed by a competent text-book committee of the Department of Scientific Temperance Instruction of the Woman's Christian Temperance Union.

If, at any time, you are asked to recommend for adoption in the schools under your care text-books on this subject that are not indorsed by the above committee, you are being urged to select books that are either deficient in quality, or quantity of temperance and other hygenic matter, or that are so badly adapted to grade that this teaching is unintelligible to those who are to use them. In either case, you are asked to rob the children of the warning instruction to which they have a legal right and which they greatly need in the ambushed walks of life.

The consequences of a mistake in the adoption of text-books in any other branch are trifling as compared with an error in judgment here.

The liquor interests, owners of brewing stock and their sympathizers, fearing for the effect of this study upon their future profits, are saying through so-called conservative advisers, "Better not adopt indorsed books. They are too radical." The man who says this is advising what the brewers want.

The endorsed physiologies are as radical as the whole truth in their teachings. Every attempt to prove them inaccurate has signally failed. The children need these truths as a "lamp to their feet and a light to their path." The state soon to be governed by those now in our schools needs that all its children should have the utmost truth on these subjects to fit them for efficient citizenship.

School superintendents, school boards and committees, remember that the drink habit fastened on a child means that his future money-earning power is thereby mortgaged to the brewer and distiller, and his soul to death. While you are pondering what books you will give him, the child is in the market-place and the brewers are bidding. In the name of God, humanity, and patriotism, decide for the child and give him the whole truth.

CHARACTER BUILDING

BY MARY H. HUNT

WHOEVER obeys an enlightened conscience can be trusted in the varied walks of life. We say he has character. He knows what he ought to do and he acts up to his light.

An important factor in character is knowledge of what one ought to do about questions that seem uncertain without such knowledge. Conscientious men of other times, lacking the enlightenment of our day, drank alcoholic liquors. Their ignorance of the real nature of these drinks and of the evils that inhere in their use did not avert the results to the drinkers themselves or others. They left a sad legacy of hereditary physical, mental, and moral weaknesses to their descendants.

What are we doing to prevent this in our day?

We had heard in the morning that Togo had sunk the entire fleet of Russian warships in the Sea of Japan. Wishing for the latest news, I bought an evening paper from a newsboy about twelve years old whom I happened to meet on the board walk at Atlantic City, New Jersey.

Handing him the pennies for the paper, I asked, "Do you go to school?"

"Yes," he replied, "but school is out now for today, and I am selling papers."

"What do you study in school?" I asked.

"Percentage, geography, drawing and history."

"Do you study physiology?"

"We had that last term," was his quick reply, "but we are to have examinations in it for promotion before school closes for vacation."

"Physiology teaches you to drink beer, does it not?" I inquired.

With an amazed look at my apparent ignorance, he replied, "No, indeed, there is alcohol in it."

"Well, what of that?" I asked.

"Why, don't you know, the alcohol gets into your nervous system, and if you want to draw a straight line you can't."

"What is your nervous system?" I asked.

Quickly came the answer, "It's your nervous system that makes the muscles go, and they make the bones go. Don't you know if a man is drunk he can't walk straight. The alcohol benumbs the nerves in his muscles so he goes crooked!"

"Beer must be a bad drink if it does all that," I replied. "I suppose you'll not drink it?"

"No, indeed, I won't," he said.

"Well, how about cigarettes?"

"They are bad, too. They spoil your brain so you can't remember. I never smoked one, and I never will."

"That is right, my boy. Always tell the truth, be honest, never drink anything that has alcohol in it, never use tobacco, and perhaps some day you will own a newspaper yourself."

"That I will, you'll see," he said, as he rushed for his next customer with the air of the future proprietor of a great daily.

In Chicago, our mid-continental metropolis, I happened to be the only passenger on the 'bus running from the railroad station to my hotel. A boy with a package jumped upon the steps. To prevent his being told to get down by the driver, I paid his passage for I wanted to talk with him.

"Do you go to school?" I asked.

"Yes," was the reply, naming the Chicago public school he attended, "but it is vacation now, and I am working for Marshall Field."

"Did you study physiology last year?"

"Oh, yes, we have that one term every year."

"Don't you get tired of having it so often?"

"No," he answered, "'cause we have advanced work in it every year. It is interesting. It teaches you about your body and how to take care of it so you will be well and strong."

"What does it teach you about beer?" I asked.

"Oh, beer is bad stuff. It makes your brain dull," and, with an air of disgust, he added, "You can't make any kind of a business man if you drink beer, wine, or any of those liquors that have alcohol in them."

"How about cigarettes?" I asked.

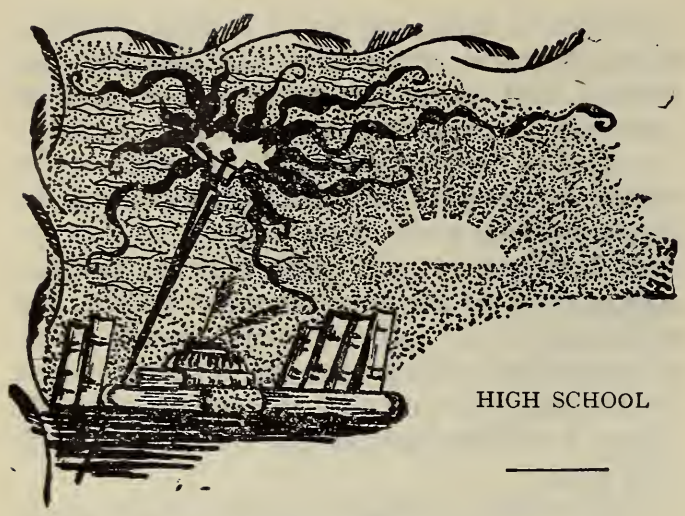
"They hurt your brain, too," he said. "A fellow that wants to be anything shouldn't smoke cigarettes."

A regiment of young soldiers from Seattle, Washington, was coming home from Manila soon after the Spanish War. In spite of the protest of the local Woman's Christian Temperance Union, the saloon-keepers met these soldier boys at the wharf with brimming pails of beer.

But these mothers were overjoyed as they saw the returned defenders of our flag, who during their last five years in the public schools had studied the *Pathfinder* physiologies, indorsed books adopted for that state, refuse the beer.

Stop the public school children anywhere in our land, and question them as were those mentioned here. You may not get so intelligent answers in every case, but you will see evidence that education against the use of alcoholic drinks, the greatest enemy to character, is reaching not a select few but the millions of the future men and women of this great republic, who will banish the last vestige of this traffic from our land. Each year this study is being better taught.

What are you doing to help?



HIGH SCHOOL

THE SKIN

BOYS and girls entering the high school are usually more interested in facts than in theories. They want to know that a thing is true, and they are especially happy if they themselves can demonstrate its truthfulness. Experimental work appeals to them as almost nothing else will, and there are many simple experiments, particularly in physics, which will suggest themselves to every teacher, and which can be easily carried out in the schoolroom.

STRUCTURE OF THE SKIN

Begin with the study of the individual cell. Unicellular organisms may be observed with the aid of a compound microscope. A little chopped hay kept for a day or two in water from a stagnant pool will produce a multitude of these small creatures and among them you will get some amœbae.

Let the pupils watch these and the other animalcules during several days, making pen-and-ink drawings of what they observe.

In this way they should get a clear conception of a living cell, and of its three parts, the wall, protoplasm, and nucleus.

When you are ready to take up the position of individual cells in the skin structure, make a large drawing on the blackboard, or on manila paper, showing the full round cells forming the inner layers of the dermis, and elongated ones becoming more and more flattened as they approach the surface which consists merely of dry scales, the dead, flattened cell walls.

Grapes, which the pupils can have in their own hands, will illustrate these different conditions, by pressure, and good models showing the entire skin structure may be easily obtained.

The pupils should keep notebooks and make their own drawings with India and colored inks.

SWEAT-GLANDS

Call attention to the necessity for excretion. Wherever living cells exist there is action. New protoplasm is being formed and waste matter discarded. Waste matter is dead, and as soon as life ceases decay begins. This useless matter must be eliminated from the body if we remain healthy.

Let the pupils take hand-glasses and examine the skin on the palms of their hands.

What are these tiny openings? Try to count the number in a square inch of surface.

Tell the class to look up the word, gland, in their dictionaries. Explain by means of a drawing the structure of a simple gland, a sac lined with cells.

The special function of any gland, that of secreting a fluid from the blood and originating a fluid of its own, may be illustrated by the work of the maple tree in assimilating air, water, and various mineral substances from the earth, and out of these materials manufacturing the sweet sap, a substance entirely different from any of those which contributed to its creation.

The sweat is a fluid which holds in solution impurities that are constantly being thrown out upon the surface of the body.

What does this necessitate? What would be the result of having all the pores closed?

BLOOD-VESSELS

The necessity for blood-vessels in connection with the sweat-glands will have been brought out in talking about the functions of these glands.

Twisting a red string about a small rubber tube, then tying the tube into a knot, will very well illustrate the relative positions of glands and blood-vessels. Leave several inches of the tube free to represent the duct.

Give each pupil a few inches of the tubing and some string, and let each one make a representation of a sweat gland. After the lesson let them make drawings in their note-books, using red, and black ink.

PAPILLÆ

Call attention by means of models or drawings to the structure and position of the papillæ. The ridges of the finger-tips may be studied by means of the hand-glasses, and the degree of sensibility of different parts of the body shown by simple experiments, such as applying the points of a pair of compasses to various portions of the skin and seeing at what distance apart the two points can be felt as two instead of one.

HAIR AND NAILS

These organs will be studied as modifications of the skin.

A hair may be placed under the microscope which will show the central shaft and the flattened cells forming the wall.

Use drawings to explain the follicle and bulb.

Tell the class to find from their books before the next day why some hair is light and some dark, and why hair turns grey, or white; also, why some people have a fair skin while others are dark, and what causes freckles.

What is the origin of the expression "hair-
Tell episode?
raising the class to find out the office of the oil-glands, and the necessity for them.

What causes blackheads? Explain that they may be prevented and often cured by simple cleanliness.

Why are finger and toe-nails necessary?

How do nails grow?

What is the effect of biting the finger nails? of scraping them with any sharp instrument?

THE SKIN REGULATES THE HEAT OF THE BODY

Exercise, or any unusual exertion, brings the blood to the surface. This increases the secretion of perspiration which is poured out over the skin.

How does this affect the body? Illustrate by the cooling of the air when the streets are watered on a hot day.

Simple experiments in physics will show how the body is cooled by radiation, conduction, and convection, and how the temperature is equalized by circulation.

EFFECTS OF ALCOHOL

Place an amœba under the microscope, and call some pupil to watch it. Insert between the slide and cover glass a drop of water containing one part in one thousand of alcohol.* Let the pupil watch it again and tell the rest of the class what takes place.

The amœba which before had been capable of movement and of throwing out portions of its body like arms, soon becomes motionless.

The alcohol has paralyzed it.

A similar effect is produced by alcohol upon the nerve cells in our bodies.

How must this affect the sense of touch?

By partially paralyzing the nerves controlling the muscles which enlarge or contract the blood-vessels of the skin, there is a rush of blood to the surface, and the body is too rapidly cooled.

What would be the result of frequently producing this effect on these nerves?

They would lose their power properly to control the blood-vessels.

How would that effect the circulation of the skin?

Explain the red nose of the drinker.

Anything that produces a paralyzing effect upon the nerve tissue of the body is a narcotic.

How does tobacco affect the skin? Describe the finger-tips of cigarette smokers.

In some parts of the body the poison nicotine may be absorbed through the skin.

What is smoker's cancer? The nicotine entered the system through the membrane of the throat. History records the death of several prominent men from this cause. Find the names of one or two of them.

AUTHORITATIVE QUOTATIONS

ALCOHOL INJURES THE MEMBRANES SURROUNDING THE CELL TISSUES

All the cell tissues of the body are surrounded by membranes on the integrity of which the silent work of building up the body depends. Alcohol, by its power to coagulate albumen, condenses, thickens and clogs these dialyzing membranes thereby hindering the endosmosis and assimilation of nutrient materials, and the exosmosis or excretion of brokendown, retrograde products and toxins from the body.—E. Stuver, M. D., Ph. D., Colo.

ALCOHOL PRODUCES DEGENERATION OF ORGANS

The only rational explanation of the greater longevity of abstainers over moderate drinkers, as shown by thirty-four years' experience in a British life insurance company, is that the result of drinking alcohol is to produce gradual degeneration of various organs and tissues so that in course of time these are unable to carry on their functions so as to resist the attacks of disease.—*British Med. Temp. Review.*

ALCOHOL CAN NOT ASSIST NATURAL GROWTH

Alcohol resembles the organic foods in the fact that it is oxidized in the body. It differs from them in that, while these can as a rule, in normal conditions, be depended upon to replace a given amount of body material, it can not so be depended upon.—Henry M. Hewes, M. D., Boston.

MEMORY GEMS

Fasten the drink habit on a boy and his future money-earning power is thereby mortgaged to the brewery and saloon.

True liberty means total abstinence from all alcoholic drinks because it is the nature of such drinks to enslave the drinker.

*The teacher should prepare this water beforehand, so that no alcohol will have to be carried into the schoolroom.

THE QUICK MARCH OF TRUTH

THE rapidity with which truth so enters into the conviction of a people as to shape their habits depends upon how widely and persistently that truth is disseminated. If a new truth seems to be pervading the ideas and customs of the people, look for its cause; you can be sure it did not just happen. For instance:

In 1868, Professor Schmiedeberg of Germany began publishing his discovery that the true nature of alcohol is not that of a stimulant that adds to strength, but of a narcotic, and that the apparent stimulation is due to its weakening the controlling nerves.

But the application of this discovery to the popular custom of taking alcoholic drinks to "brace one up" for a difficult task was not made in Germany, for Schmiedeberg's discoveries rested in solemn silence in the musty archives of medical libraries, save as curious scholars here and there heard of them.

In England, between 1870 and 1876, Dr. Benjamin Ward Richardson made further discoveries concerning the impairing influence of alcohol as a narcotic upon the powers of the human body, and illustrated them with the story of the champion oarsman who found by experience that without alcohol he could maintain the steady nerve, the clear brain, and the endurance that defeated an opponent who used these supposed stimulants as an aid.

At that time, Dr. Richardson pleaded with the English people to have the important fact that alcohol is a narcotic which injures working ability taught the children in the schools of that country, but beyond a few annual lectures to a few schools it was not done.

In America, in 1882, Dr. A. B. Palmer, Professor of Materia Medica in Michigan University, brought back from his European study the new views taught by Professor Schmiedeberg and Professor Richardson. Dr. N. S. Davis added the testimony of his own investigations to these truths, and occasionally the subject came up for discussion in medical journals.

If, in America, the important truth that alcohol is a narcotic poison that impairs human working ability had been left to filter slowly down through medical literature to the people, the industrial history of this country would not have been affected by it in a hundred years; but the teaching that was pleaded for in vain for years by Dr. Richardson for England was speedily introduced in the United States.

Beginning in 1882, and continuing until all were included in 1902, the United States of America enacted laws state by state, and the National Congress for all schools under Federal control, requiring that the young in the public schools shall be taught the nature and effects of alcoholic drinks and other narcotics in connection with physiology and hygiene. These laws do not specify what the nature and effects of alcohol are that should be taught. This is left to be settled by the school text-books on this subject.

Meanwhile, under the direction of Mrs. Mary H. Hunt, the author and leader of compulsory scientific temperance teaching of the Woman's Christian Temperance Union, the utterances and investigations recorded in the medical books and papers on all sides of this subject in all languages were being collected, read, translated, classified and put on file in the Bureau of Scientific Temperance Investigation. Thus an arsenal of demonstrated truth was built up. But these truths did not remain there unused.

Almost alone, during the earlier years, Mrs. Hunt saw the relation between individual and national well-being and universal popular knowledge of these facts, and insisted that these should be put into the public school text-books on physiology. This has been done in nearly all cases. Where it has not been done, the public has been informed in what respects such books are deficient and why they have therefore not received the official approval of the Department of Scientific Temperance Instruction.

Thus the American school literature on this subject has been created, and for nearly twenty years the children of the United States have been learning in school that alcohol is a narcotic that dulls the brain, injures the judgment and character, impairs precision and skill to do fine work, lessens strength and power of endurance, thus reducing the workman's money-earning power.

And what has been the result? Let other nations testify.

England, when she refused Dr. Richardson's suggestion that the public school children should be taught the foregoing facts, led the commerce of the world. Recently, she woke up to the fact that America was supplanting her. She sent a commission over here to find the reason, and the commission reported, among other causes, the greater sobriety of the American workmen, their more efficient, trustworthy, and consequently more productive and profitable labor. When inquiry was made for the cause of this greater sobriety, it was found that American youth are taught in the schools that alcoholic drinks injure working ability, and hence the majority of employers demand abstinence of their employes.

Germany, too, and other continental countries, eager for first place among the great nations, have been learning the same lessons. One of

their keen-minded philosophers, Justus Gaule, M. D., Professor of Physiology in the University of Zurich, Switzerland, in a recent article says: "In a rivalry between the old and new world on the basis of present ability to produce, the old world would have to go under."

He gives as a reason for this what he calls the alcohol-free air of America as compared with that of the countries of Europe, which he says is "a result of the instruction in the public schools concerning the influence of alcohol." He then adds, "The Americans by this instruction concerning alcohol have done their country a greater service than they think." To compete with these soberer Americans, he says, "We in Europe must broaden the instruction in our common schools by intelligent study concerning the powers of the human organism and the dangers which threaten it from alcohol."

More and more rapidly in America the requirement is being extended that the working-man must be sober to be of value to his employer. The Philadelphia *Bulletin* recently published the following:

"He who plants a tree plants love;
Tents of coolness spreading out above."*

"When the linemen in the employ of the Wyoming Light Company received their pay envelopes at Wilkesbarre on Saturday night, each man found along with his money a printed pledge to abstain from the use of intoxicating liquor while off and on duty, which he was requested to sign, and which the workmen will sign cheerfully in consideration of the good wages they receive.

"This Wilkesbarre requirement is not an exception, but is fast becoming the rule enforced by all corporations engaged in commerce, transportation, and manufacturing industries. Steam and electricity are the motive powers of the present industrial world, and in unskilful or unsteady hands are as perilous to life and property as they are powerful. Hence, no railway, telegraph, telephone, or factory manager is willing to trust the management of costly equipment and the protection of hundreds of human lives to brains that are befuddled and nerves that are shattered by indulgence in drink."

Thus America, always quick to put a new idea to practical test, has illustrated the fact that the rapidity with which a new truth influences the habits of a people depends upon how widely and persistently that truth is disseminated.

*Courtesy Boston & Maine Railroad.

BOOK NOTICES

THE PHONIC WORD LIST, by Sarah F. Buckelew and Margaret W. Lewis. Isaac Pitman & Sons.

An excellent little text-book presenting a plan which has been sucessfully worked out in the schoolroom. It will be gladly welcomed by teachers of primary grades, especially those who are responsible for foreign-born children.

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We have received number one of this series, the book for the first grade, and find it very pleasing. The getting together of a sufficient number of suitable memory gems has always been one of the primary teacher's difficulties, and no doubt teachers of all grades will value the assistance of this series of eight books.

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	GRADE I*.	GRADE II*	GRADE III*	GRADE IV	GRADE V	GRADE VI	GRADE VII	GRADE VIII	HIGH SCHOOL
Sept.	Development of body. Need of exercise.	Review parts used in work and play. Development of muscles.	Use and abuse of the grape. Review taste.	Skin; work of glands. Bathing. Clothing.	Success versus narcotics.	Respiratory system; lungs, throat, nose.	Care of mouth and teeth.	Clothing; harm in tight corsets, shoes, collars.	Skin; functions, cell structure, glands.
Oct.	Correct position; sitting, standing, walking.	Sense of feeling; location, how trained.	Teeth; shape, use, care.	Care of living and sleeping rooms. Cleanliness. Fresh air.	Brain, spinal column and nerves; how affected by alcohol.	Smell, taste, touch; how rendered acute. Alcoholic appetite.	Digestion and assimilation.	Respiration; breathing organs. Voice; how produced, how trained.	Fermentation. Alcoholic liquors; effect on mind, body, character.
Nov.	Food and drink; nutritious, harmful.	Sense of hearing; location, care, training.	Tobacco; how harmful, why.	Necessity of food and drink. Process of growth.	Blood; under microscope, serum, corpuscles.	Eye and ear structure, care, training.	Liver; structure, functions, how affected by alcohol.	Food. Absorption. Assimilation. Oxidation.	Circulation. Assimilation.
Dec.	Cider, wine, beer; effects. Cigarettes.	Sense of seeing; use of eyes, care. training.	How we grow. Need of exercise and sleep.	Circulation; heart, veins, and arteries.	Large arteries. Capillaries. Pulse.	Skin; layers, functions, care.	Excretion; necessity for, excreting organs.	Need of outdoor life.	Experiments on special senses.
Jan.	Parts which help us move about; legs, feet, toes.	Sense of smell; why important. Necessity of pure air.	Brain; location, use, care.	Respiration; lungs. Deep breathing. Exercise.	Hand and foot compared, contrasted. Effect of narcotics.	Temperature of body, how maintained. Clothing.	Lung development; how to prevent consumption.	Special senses; how made more acute.	Structure of body. Composition of bone and muscle.
Feb.	Parts used in play or work; hands, fingers, thumbs.	Sense of taste; importance. Cigarettes.	Nerves of sensation and motion.	Nerves of sensation and motion.	Bandages for cuts; how to stop bleeding.	What constitutes a complete food; alcohol why not a food.	Effect of alcohol on tissues. Appetite for alcohol caused how.	Secretion; necessity for. Glands.	Common poisons; antidotes for.
Mar.	Parts necessary to life; head, trunk.	Food. Table manners. Beer, wine, cider.	Bones; aids to growth, correct position.	Fruit and grain poisons; effect on nerves and blood.	Proper positions in sleeping, working, sitting. Backbone.	Blood; serum, corpuscles. Effect of alcohol.	Brain and nerves; nerve tissue, ganglia, spinal cord.	Muscles; voluntary and involuntary, training.	Heat of the body; food, exercise, rest.
Apr.	Care of body; cleanliness.	Voice; harsh or pleasant, training.	Muscles; care, aids to development.	Spinal column and brain; location, uses, care.	Digestion; teeth, mouth, stomach, intestines.	Muscles; use, development, care,	Sympathetic system; habits.	Tobacco; effect on eyes, heart, throat.	Patent medicines; many contain alcohol.
May	Need of shelter and clothing.	Bathing; necessity for. Care of skin.	Deportment on the street, at school, and at table.	Accidents; bleeding from nose, cuts and burns.	Need of sunshine and rain. Vital organs.	Bones; kinds, uses, attachments, growth.	Effect of alcohol and tobacco on body.	Fermentation; nature of, how produced, products.	Success from a physiological view point.
June	Reviews.	Reviews.	Reviews.	Reviews.	Reviews.	Reviews.	Reviews.	Reviews.	Reviews.

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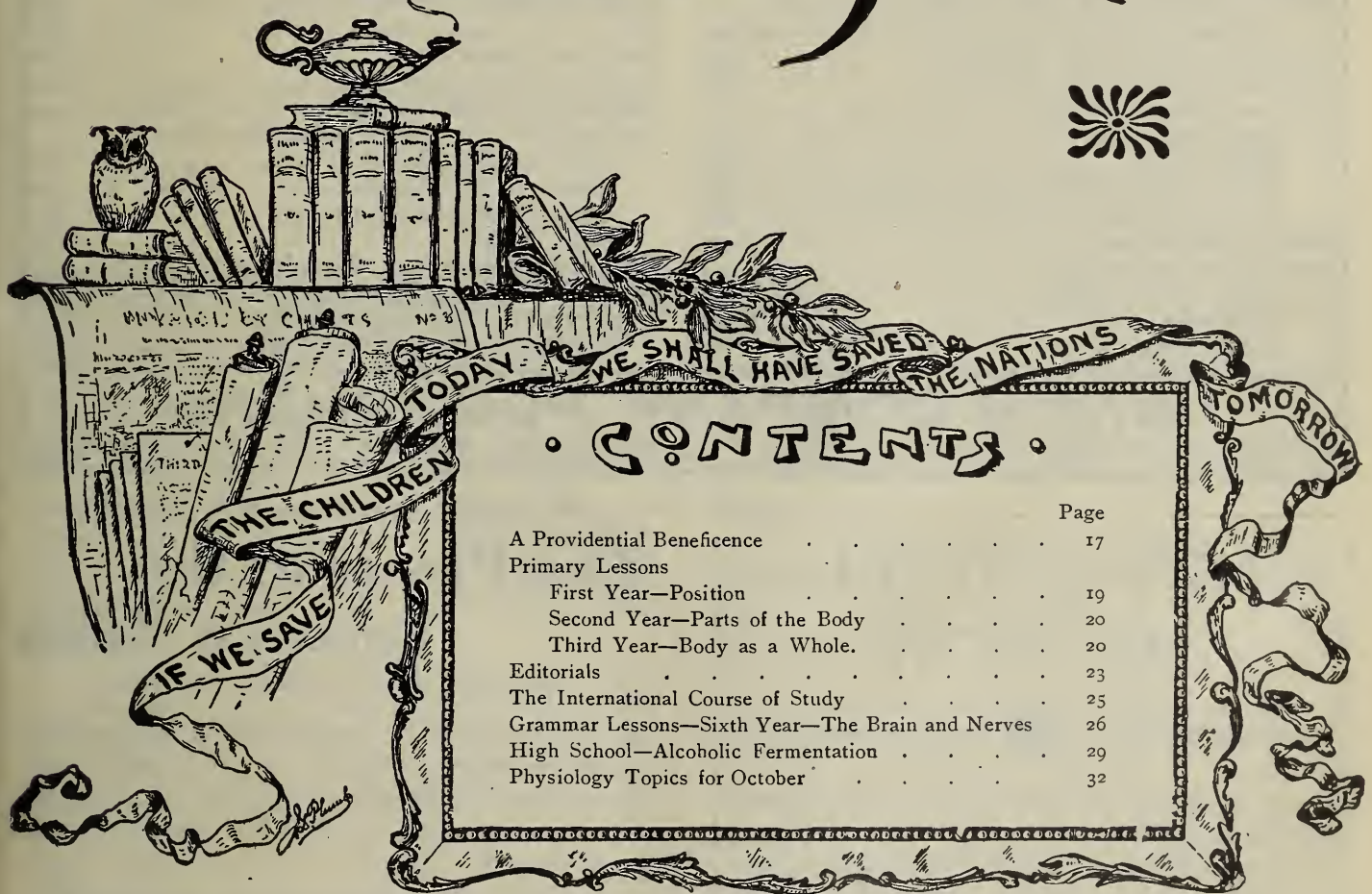
The School Physiology Journal



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PUBLISHED AT
BOSTON, MASS.
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VOL. XV. NO. 2
OCTOBER, 1905

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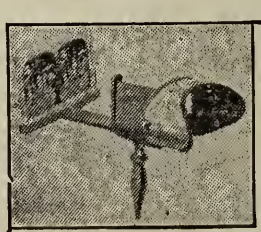

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School Physiology Journal

Vol. XV *BOSTON, OCTOBER, 1905* *No. 2*

OCTOBER

BY GEORGE W. SHIPMAN

MONTH of fruits and falling leaves,
Under the opalescent skies
The vagrant summer idly lies,
While coming Autumn deftly weaves
Rare tints for tall ungarnered sheaves
Of golden-rod, kissing the eyes
Of purple asters as she dyes
The vine that swings beneath the eaves.

And all the bending hedge-rows seem
A Joseph's coat of colors. Hues
That shame the rainbow's royal arch
Set all the harvest-fields agleam
With beauty, fresh with fragrant dews,
To crown the season's onward march.

A PROVIDENTIAL BENEFICENCE

BY REV. ALBERT H. PLUMB, D. D.

Published by request

The author of this article is the pastor of a large and influential church in Boston, the Walnut Avenue Congregational Church. He has been chairman of the Advisory Board of this Department since its early days and is thoroughly familiar with the work that has made temperance education compulsory throughout the country.

I COUNT it one of the highest honors of my ministry to have had the privilege, for nearly twenty-five years, of personal knowledge of the growth and power of the American Method for the Prevention of Intemperance, by laws requiring the findings of science on the subject to be taught to all pupils in all public schools.

It is not a question whether such instruction is calculated to do good. That is a necessity. Knowledge is power always. You can put salt in a barrel of meat and go away and leave it, feeling sure its saving influence will continually be felt. So with truth, although the living man, unlike the dead tissue, can resist its power. That power, however, is always there, and always operative.

The recent parliamentary commission in England says, "The Committee believe that more may be done to check the degeneration resulting from drink by bringing home to men and women the fatal effects of alcohol on physical efficiency, than by expatiating on the moral wickedness of drinking."

Prove to a boy that alcoholic drink, even in small quantity, has power to injure the healthy body, and he will be apt to say to the proffered mug of beer: "You can't fool me. I know you. I am not going to butt my head against a wall, or load myself in the race of life."

Already this teaching has led many great corporations to require total abstinence of all in their employ, for economic law and moral law are from the same Divine Hand. As we look at the stupendous fact that in the short space of twenty years, a nation of eighty millions of people were led to enact these laws, we exclaim, "What hath God wrought!"

It is not fanaticism, not trickery, not jobbery. It is the force of the better reason; and for one who has been in close touch with the entire movement it isim possible not to look with adoring wonder on the way in which the beneficent Giver of all Good accomplished this marvellous result. In answer to innumerable prayers, God has given to vast numbers of the women of our land a lofty moral enthusiasm, a self-sacrificing devotion, and a masterly wisdom of procedure in this undertaking, which has compelled admiration and assured success.

But when God would prepare a great leader for a great movement he begins early and continues long. To know what a woman is and can do, learn from whence she came and what her offspring is. Learn her inherited tendencies, tastes and traditions, her latent capabilities, her endowments, acquirements, environments, opportunities, co-workers, and also what she has done.

On a fourth of July, near Salisbury, Connecticut, there was born one whose maternal ancestor was a direct descendant of the English cavalier, Edward Winslow, who, coming to this country on the Mayflower, was one of the early governors of the Plymouth Colony, as well as of the gifted and godly Thomas Thacher, who was born in Salisbury, England, in 1620, and who became a learned physician and eminent divine, the first pastor of the Old South Church, Boston. Her paternal ancestors were early connected with the Salisbury iron industry, as her able and accomplished son was with the aluminum industry of Pittsburg and Niagara. This justly celebrated young scientist, an expert chemist and successful manufacturer, Captain Alfred E. Hunt, was heart and soul in the work of his mother, herself a professor of chemistry, and, until he gave his life to his country in the Spanish War, exemplified and assisted her pious and philanthropic qualities and achievements.

Mrs. Mary H. Hunt has compiled the largest collection in the world of the widest and latest results of scientific thinking and experiment in her specialty; has addressed more legislative bodies than any other person living, braving the fever-laden heats of the south and the piercing blizzards of the north, in her frequent and wearisome journeys in disseminating this knowledge and impressing its importance upon lawmakers, teachers, and the public at large.

In the indispensable work of securing able authorities to prepare, and competent publishers to issue school physiologies embodying the facts and free from demoralizing falsities, she has so far overcome the finical quiddities of certain apathetic, captious, and opinionated educators, and the timidity of many time-serving school authorities, and their unworthy deference to the self-indulgent ideas of the luxurious classes, and to the virulent opposition of the unscrupulous liquor interests, that the largest publishing houses are now eager for her indorsement, always gladly and gratuitously given when deserved, that their textbooks may find a market by satisfying the demands of an enlightened public sentiment in teaching the absolute truth.

"October turns the fleecy clouds to boats,
And sails them on a sapphire lake."

"You will ruin the cause if you are so extreme. Why not be more conciliatory?" cautious friends have said. But she has been unswervingly insistent that the children shall have the solemn warning of the plain truth that alcoholic beverages are in no true sense a food, but a dangerous poison always. And now great bodies of learned experts and physicians in England are reiterating her demands as the best possible prevention for the degeneracy which threatens their life.

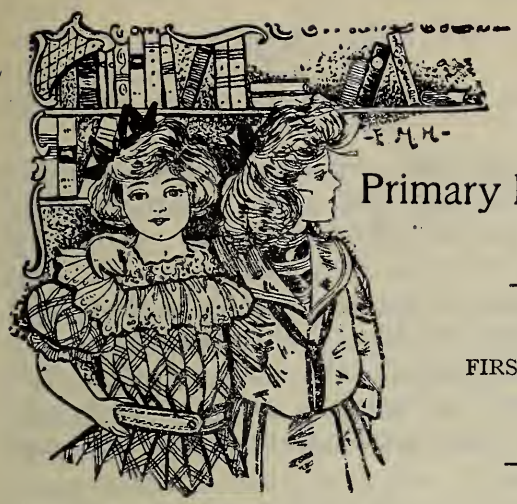
From all over our land, and from across the seas are continually coming to her appeals for counsel and for facts to aid in the never ceasing fight to retain and inforce the temperance instruction laws. For of course the insatiate liquor power is incessant and persistent, by open assaults or by indirect subtleties to parry or weaken the blows that science is giving it.

All this vigilant guardianship of the reform costs money, and it is a sorrow and a wrong that the time and strength of this heroic woman must be consumed in the effort to provide for this necessary expense. Some day she will die, and it is my hope and prayer that before that day a fund will be provided whose income will enable the work of this Bureau to go on. Her accurate knowledge, her clear vision, her forceful speech and facile pen, her reverence for God's truth embodied in natural law, her generous appreciation of her great and noble army of intelligent and efficient co-workers, her humble piety and prayerful faith in God have placed her before my mind as one of the most unselfish and useful women of our time, entitled to the lasting gratitude of every lover of mankind.

Such personal words would not be written here but for the fact that moderate drinkers, objectors to the study in the lower grades where it reaches future majorities—the law-making power—and other liquor sympathizers, unable to meet the science and logic of her appeals that have carried legislatures and other tribunals, have resorted to their only argument, namely maligning of motives, hence, from the beginning of her work till now, she has wrought amid storms of calumny and against false insinuations of covert assault. But unmoved by praise or blame her cause has marched steadily on, because it is God's cause. A woman who has given years of unpaid and most arduous service, and many thousands of dollars for this holy cause, deserves at least this plain statement from one who has known her long and well.

LOVE

Love is always building up. It puts some line of beauty on every life it touches. It makes life seem worth while to every one into whose eyes it looks. Its words are benedictions. Its every breath is full of inspiration.—*Sel.*



Primary Lessons

FIRST YEAR

POSITION

INTRODUCTION

As one looks about a schoolroom, it is no uncommon sight to find at least half of the pupils in bad positions. If this fault is not corrected while the child is young, it will be hard for him to acquire the correct attitude later.

One cause for bad position may be fatigue. Then brisk movements will rest the tired little back and legs. Possibly the chair and desk are not the right size. Whatever the cause, the effects are the same. They usually come in this order: fatigue, bad habits, physical weakness, or even deformity.

The remedy is simple—comfortable chairs and desks, freqeuent change in work, instruction as to proper ways of sitting and standing, exercise, and especially watchfulness on the teacher's part.

REASONS FOR GOOD POSITIONS

Jennie and Marjorie were next door neighbors. When they began to go to school, Jennie's mother said to them both, "Sit up straight in your seats. Then you won't get so tired and you can learn your lessons better."

They both promised to remember what she said. Marjorie often thought of it during the day. Then she straightened up and put both feet flat on the floor.

Jennie forgot, and lolled in her seat.

So it was every day. Marjorie tried to stand and sit just as straight as she could, but Jennie said:

"Oh! I don't care. I can't sit up straight all the time."

At the end of the year, Marjorie had grown tall. She held her chest high and her head up.

But Jennie—poor Jennie! Her mother had to buy her a pair of shoulder braces to hold back her shoulders, because she had not tried to keep her back straight. She had to wear the braces for several months, until she learned to sit and stand correctly.

Show how Marjorie sat; how she stood.

How ought we to stand? Straight. (The teacher illustrates as she asks these questions and class follow her example.)

Where should both feet be?

How shall we hold the chest? the head?

STANDING EXERCISES

Let each stand as straight as possible, both feet on the floor, head up, chin in, arms at sides, shoulders back.

Rise on toes, sink, rise, sink.

When you rise, your head ought to go straight up and not forward. The weight should rest on the ball of the foot, and not on the heels.

Place a piece of cardboard on the head while taking the following exercises:

On toes, rise, sink.

Forward, march, one, two.

The cardboard ought not to fall off.

WAY TO SIT

Class sit—way back in your chairs. The lower part of the back ought to touch the lower part of the chair. Feel and see if it does.

Are your feet both flat on the floor?

Hold your head up, chin in, hands in lap.

SITTING EXERCISES

Bend forward, backward.
Breathe in.
Breathe out.
Hands clasped behind head.
Bend to left.
Up.
To right.
Up.
Forward.
Backward.
Hands in lap.

Remember always to sit way back in your chair. Never slide down.

What shape will your back be if you slide down in your chair?

(Draw lines on board to show a straight and a curved back.)

Try to have your back like the straight line.

If you try now to sit up straight, and to stand straight, you will not stoop or have round shoulders when you grow up.

SENTENCES FOR THE BLACKBOARD

I must sit straight?
I must stand straight.
I must keep my back straight.
I must hold my head up.

PARTS OF THE BODY

SECOND YEAR

TO avoid self consciousness on the part of the child, refer to the bodies of animals as far as possible in giving the lessons. Children are delighted to have a pet animal in the schoolroom. When this is not feasible, a picture may be substituted.

For the following lessons, use a picture in connection with observation of the animal.

COMPARISON WITH A BIRD

Material. Canary bird and picture or blackboard drawing of one.

Who has come to visit us this morning? What is his name? (Show bird and picture.)

How is Dick different from the bird in the picture? (Question until you bring out the fact that Dick is alive, the picture is not.)

What things can you do that Dick can do? What can he do that you can not do? What can he do better than you can do?

How is Dick's mouth different from yours? Why is it different?

What does he have instead of fingers? Why does he need claws instead of fingers?

How does he get about when you let him out of the cage?

Can you see his ears? Do you think he has any? (Show where they are.)

Please stand and find a part of your body that is different from Dick's. How does it differ?

LOCATION OF PARTS OF THE BODY

Please touch and name the parts of the body with me :—head, neck, shoulders, arms, hands, trunk, hips, thighs, knees, legs, feet. (Call upon a number of the children to name a part of the body and show its location.)

John may come forward and touch the parts of his body that will bend. What is the name of these parts?

(Call upon the children to give the name of one or more of the joints and tell their use.)

THINGS TO BE REMEMBERED

The animals are our friends.

They have bodies just as we have.

Our bodies are made up of parts fastened together.

The joints bend when we move the body.

(If "Things to be Remembered" be repeated by the children after the teacher, on days intervening between the lessons, the gain will be greater. It is not necessary that these statements be memorized, word for word.)

THE BODY AS A WHOLE

THIRD YEAR

Last year you learned many things about the body.

What is the most important part of the body? Why is the head the most important part? What can you tell about the head? (After the class have told what they remember, ask what good use they have made of their heads today.)

What have you learned about your hair?

What did you learn about your eyes? (Get as many facts as time will allow on each subject.) To what good use have you put your eyes today?

What can you tell about your ears, your mouth, your nose?

How many of you are sure that you always breath through the nose?

What did you learn about the trunk of your body? How many of you think you stand and sit straighter than you did last year?

What can you tell me about your arms? How have your arms changed in the past year?

What did you learn about your hands? What can you do with your hands that you could not do a year ago? What can you do more easily than you could do then?

What can you tell me about your feet? In what ways can you use them better than you could a year ago? What have you learned about the care of the feet?

What have you learned about the use of tobacco? Of alcohol?

We shall learn other things about the body this year?

THE HEAD AND FACE

You may touch and name with me the parts of the head : skull, crown, back, sides, scalp, hair, ears.

Of what use is the skull? Why is it hard? Why is the top of your head called the crown?

Of what use is the scalp? What care does it need?

Of what use is the hair? How should you care for it?

Why is the head round instead of square? Why round instead of pointed? What different shaped heads have some animals you have seen? Each animal has a head shaped to its needs.

Please touch and name with me the parts of the face : forehead, eyes, temples, cheeks, nose, mouth, chin.

Why are your eyes in the upper part of your body? The temple bone is very thin. We should be especially careful not to hit the temples.

Of what use is the nose except to smell with?

Why is your mouth in the lower part of your face?

What parts of the head can you move? When do you move the chin?

THE NECK

Please touch the part of the body you find below the head. How does the neck help us? Touch the throat, the sides of the neck, the nape.

I am thinking of an animal that has no neck. (Show picture of a frog or toad if necessary.)

Can the toad turn his head as you do? How can he see things that are to the right and left of him? (If no one knows, ask the children to observe how a toad's eyes are set, and report.)

THE TRUNK

You may stand and touch the parts of the trunk with me: shoulders, chest, abdomen, back, sides, waist, hips.

There is another use of the trunk besides supporting things. What is it?

When you have things you like very much and do not wish them spoiled by dust and handling, you sometimes put them away in a trunk. You say these things are precious. The parts of the body that the trunk contains are precious because they are so useful.

THE ARMS AND HANDS

You may name with me the parts of the arm: upper arm, elbow, fore arms, wrist, palm, back, fingers, knuckles, ball, tips, nails.

Why do we need so many parts? Why are there more parts in the hand than in the arm?

What have most animals in place of arms? What can they do with the fore legs and feet which we can not do? What can we do that they can not do?

Why does your hand have fingers at the end instead of having the hand in one piece?

"The world is such a pleasant place for any child to be,
With pleasant things to sing about and pleasant things to see."

What do you see out of doors that has a trunk? What does the trunk support?

Mary may stand and tell me where her shoulders are and their use.

Harry may tell me where his chest is and what it does when he breathes.

Nellie may touch her backbone and tell what it helps her to do. Who knows another name for the backbone? In how many ways can we use the spine?

The spine is made of twenty-four small bones; that is why we can bend it in any direction.

Is your spine vertical or horizontal? Why is it vertical? Why is the spine of most animals horizontal? How can you make your spine horizontal?

What does your body trunk contain? (Lungs, heart, stomach.) Of what use are the lungs? Of what use is the stomach?

There are other parts of your body inside the trunk, but we will not speak of them today.

How do your nails differ from those of the cat and dog? Why do they need claws? Why would claws be troublesome to you?

Why are there more parts in the hand and fore arm than in the upper arm?

What kinds of work need strong arms? What kinds need limber fingers and a delicate touch?

THE LEGS AND FEET

Which can do more things, the fore feet of animals or the arms of people?

What parts of our body do we use when we move about?

What things grow, but do not move from place to place?

I will write the name of each part of the lower limbs on the board, and you may name and touch it: hip, thigh, knee, leg, shin, calf, ankle, instep, heel, ball, toes, joints, nails.

Please tell me some things you can do with

your lower limbs? Why do your thighs need to be larger than the lower leg?

Can you do as many things with your feet as you can with your hands? Sometimes people who have lost both hands learn to write or paint with their toes. They learn to hold the pen or brush with the toes.

What kinds of work need strong legs?

What kinds of games need legs and feet that can move quickly? Ask the class how many legs a spider has, a fly, a snail, a bee, a wasp. If they do not know, suggest that they observe and report.

We have gone from our heads to our feet and have found that our body has many parts,

THINGS TO REMEMBER

My body has a head.
My body has a trunk.
It has upper and lower limbs.
Each part has a work to do.
I have a wonderful body.
My body has many parts.
They are all useful.

THE TEACHER'S EXAMPLE

BY JENNIE DAVY

The schools of today are calling for men and women who are teachers from head to foot,—in heart, brain, and hand.

Let the whole school life be conducted in accordance with the highest standards of morality. Teach the pupils to be upright, practical and efficient; be yourself an actor, not merely a critic of the school. Criticism is a very good thing, but example is a much better one. And remember, the softer virtues need cultivation as well as the stronger ones.

The real work of education is to fit the young for the duties of life. And there are lessons for these young people in the lives of their teachers much more potent than all the teaching of the wisest books.

It is both a duty and a privilege to stand forth as an example and to be an inspiration to the school; serving it with a zeal and devotion that never tire. Life never gave so much and never asked so much of any other persons as of the public school teachers. They must live that Scripture text: "The children of Israel started out to go to the land of Canaan, and to the land of Canaan they went."—*Western School Journal.*

OCTOBER WOODS

BY IDA WHIPPLE BENHAM

The forest has opened the chestnut burrs,
And the nuts fall lazily, two and three;
The squirrel chatters, the partridge whirs,
And the red-capped woodpecker bores his tree.

Oh, lightly and lightly the birch leaves float,
Like golden butterflies loosed in spring;
And bright as the sails of a fairy boat
The walnut leaves take wing.

Now come, now come, far down the lane
The asters beckon, the robins call!
The shrunken brook grows broad again,
And leaps in a laughing waterfall.

Over the style, and over the bridge,
Adown the path where the meek cows stray,
By glen and hollow and windy ridge
Let us follow the woodland way.

See! how the marvelous cloth of gold—
A Tyrian tapestry woven fine—
Wide as we wander is still unrolled;
Rustling under your feet and mine!

The breath of the woodland is joy to breathe—
The mingled odors of leaf and flower,
And clustering fruit where the wild vines wreathe
The oak tree's mossy tower.

Softly into the vistaed wood
Through painted windows the sunbeams smile;
The hushed winds walk in pensive mood
Down many a solemn Gothic aisle.

The golden clouds hang low in air;
Wrapped in their folds the late sun rests;
And the tall trees stand as if in prayer
With their beards upon their breasts.

"The maple does not shed its leaves
In one tumultuous scarlet rain:
But softly when the south wind grieves
Slow—wandering over wood and plain,

"One by one they waver through
The Indian summer's hazy blue,
And drop at last on the forest mould
Coral and ruby and burning gold."

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"The days are still, and the long nights hushed,
And the fair sky burns like the heart of a rose;
And the woods with the gold of autumn flushed,
Lavish their splendor in crimson snows."

THE PREPARATION OF BOOKS ON PHYSIOLOGY AND HYGIENE

BY WINFIELD S. HALL, M. D., PH. D.

Professor of Physiology, and Dean of Northwestern University Medical School; President of the American Academy of Medicine; President of the American Medical Society for the Study of Alcohol and Other Narcotics.

EVERY state requires that its children in the common schools be taught physiology and hygiene, and that a part of this instruction shall deal with the nature of alcohol and other narcotics and with their effects upon the human body. While these laws require that the *nature and effects* of alcohol be taught, they do not specify what either is. The question as to what should be taught on the nature and effects of narcotics and stimulants has been left for authors and publishers to decide. Their decision has been governed partly by their individual ideas as to the best presentation of the subject, and partly by their estimate of the public demand.

At first, the result was a large number of books or series of books on the subject of physiology and hygiene only a few of which measured up to the best that was possible at the time of their publication. It became evident very soon that two things were necessary if these laws were to accomplish the good that their friends expected.

(1) It was necessary that the demonstrated truths that prove total abstinence to be not fanaticism but to be founded on experimental science should be collected from their many sources, and that the public be educated to demand that the children be taught the truth and the whole truth regarding alcohol and other narcotics.

(2) It was necessary that some organization friendly to the laws and interested in their wise administration approve the books that were to be presented to the public.

COLLECTION OF SCIENTIFIC FACTS

So it came about that in the march of events, which for lack of a better term is called progress, a student of this question, Mrs. Mary H. Hunt, of Boston, later the official head of the scientific temperance instruction movement of the Woman's Christian Temperance Union, began and continued as a personal study that search for and collection of the findings of science on this subject which now constitute the Bureau of Scientific Temperance Investigation.

The Bureau directs its activities toward the collection of results of research and of the discussion of these results in the scientific journals of all countries where research is conducted. This colossal work has been carried on for about twenty-five years, and has involved the expenditure of many thousands of dollars for journals, books, translations, copying, and topically cataloguing. The result is that nowhere else in the world is there so complete and easily accessible a collection of scientific literature on alcoholic drinks and other narcotics as exists in this Bureau of Scientific Temperance Investigation.

Its collections have been of fundamental importance in at least two directions:

First, authors and publishers have always been accorded every assistance in determining just what enjoys the position of demonstrated truth. Take, for example, the following statements:

Alcohol is a constituent of all fermented and distilled beverages; alcohol is a poison; alcohol does not nourish the body,— it is not a food; alcohol is injurious in small as well as in large quantities; the most moderate beverage use of alcohol is unsafe because it has the power even in small quantities to create an uncontrollable and destructive appetite for more; alcohol decreases muscular efficiency; alcohol disturbs the functions of nerves; alcohol makes the special senses less reliable in their messages; alcohol does not raise but lowers body temperature; all tobacco contains nicotine; nicotine is a poison.

How many of these statements may an author make with full assurance that his position is unassailable? The Bureau of Scientific Temperance Investigation is able to put into his hand within one week every published statement on any of the above topics by any man of standing among scientists. Such aid is of inestimable value to the author as well as to the cause of temperance education.

APPROVAL OF WORTHY TEXTS

Second, the approval of the Department of Scientific Temperance Instruction is an assurance to the author, the publisher, and the public that the book in question contains no assailable statement,— it vouches not only for the scientific accuracy but assures the public that the book is pedagogically abreast of the times.

But for the wisely directed activities of the Bureau of Scientific Temperance Investigation the laws would have failed of wise administration and would have become dead letters or would have been repealed.

Many attempts have been made to cause the repeal or the modification of the laws, but these attempts have miscarried because those demanding the changes could find nothing essentially untrue in the books nor could they find any reason, that appealed to the public, why these truths should not be presented to the school children.

Danish physicians have formed a temperance society, and have issued a warning, setting forth the evils of alcohol on the human body, which is posted in all the railway stations of the country.—*American Issue.*

"Grandma,papa costs me an awful lot."

"How, sonny?"

"Why, gramma, when I'm good all day he gives me a penny, an' when I'm bad I have to give him a penny."—*New Voice.*

I am not bound to win but I am bound to be true. I am not bound to succeed, but I am bound to live up to the light I have. Stand with anybody that stands right. Stand with him while he is right, and part with him when he goes wrong.—ABRAHAM LINCOLN.

"Can't I go out and play in the garden, mamma?"

"Certainly not, child. You must stay in and study your nature books."—*A True Republic.*

I have so many children I don't know what to do.

THE LAST DAY OF AUTUMN

Like a spirit glorified
The angel of the year departs, lays down
His robes once green in spring,
Or bright with summer's blue;

And having done his mission on the earth,
Filling ten thousand vales with golden corn,
Orchards with rosy fruit,
And scattering flowers around,

He lingers for a moment in the west,
While the declining sun sheds over all
A pleasant farewell smile,
And so returns to God.
—From the German.

TEMPTING PROVIDENCE

"Mabel," said her mother, "don't touch the cake while I am away. Remember, God sees you."

Five minutes later Mabel was found on a chair by the table, one finger expectantly caressing the fresh white frosting.

"Why, darling," cried her mother, "what did you do that for?"

"I wanted," said Mabel, "to see what God would say."—*Lincoln Magazine.*

AUTUMN BONFIRES

BY ROBERT LOUIS STEVENSON

In the other gardens
And all up the vale,
From the autumn bonfires
See the smoke trail!

Pleasant summer over
And all the summer flowers,
The red fire blazes,
The gray smoke towers.

Sing a song of seasons!
Something bright in all!
Flowers in the summer,
Fires in the fall!

THE INTERNATIONAL COURSE OF STUDY

WHAT IT IS AND WHY WE SHOULD URGE ITS ADOPTION

BY MRS. A. J. GORDON

The alcohol-free atmosphere of America is a result of the instruction in the public schools concerning the influence of alcohol. The Americans by this instruction concerning alcohol have done their country greater service than they think.—JUSTUS GAULE, M. D., Professor of Physiology, University of Zurich, Switzerland.

THE marvelous success which has attended the introduction of Scientific Temperance Instruction in the United States has been such an object lesson to the friends of humanity in other lands that nearly every civilized nation now has this instruction in some form in its schools. Naturally, they have turned to America for suggestions as to methods of teaching and courses of study which should insure the best practical results.

A deserved tribute to the excellence of the *International Course of Study* was given by the "Committee of the Medical Profession in the United Kingdom, Constituted to promote the Teaching of Hygiene and Temperance." This Committee of thirty-one distinguished English physicians, representing over 15,000 others, including practically the entire medical profession of Great Britain and Ireland, sent to every local school board in England, Scotland, Ireland and Wales a circular entitled "Suggested Courses of Teaching in Hygiene and Temperance," recommending its adoption; and "honor to whom honor is due," the title page contains the statement that it is "Based upon the scheme prepared by Mrs. Mary H. Hunt for use in the Schools of the United States of America."

This course of study has already been adopted by the Board of Education of Edinburgh, Scotland. It has also been published in two educational papers in Germany, and books in accord with it, adapted to the German schools, are in process of preparation.

The object sought by this study is to teach the physiological reasons for obeying the laws of health, including abstinence from alcoholic drinks and other narcotics, to each generation of pupils passing through our public schools. It is therefore vitally important to have a progressive course of study, including all grades, showing what facts should be presented each year, upon which the teachers can base their instruction. Such a course is valuable also to authors and publishers of school physiologies, as it gives them a working plan adapted to the demands of the different grades.

The *International Course of Study* is so arranged that there are simple oral lessons on hygiene and the external parts of the body in the three primary years; the principal organs of the body and their care in the fourth year; and a larger development of these facts in the succeeding years. One-fourth or one-fifth of the space is to be given to specific temperance teaching in connection with each topic. The indorsed text-books are arranged according to this plan, and include an oral lesson book containing model lessons for primary teachers, an elementary primer to be used by pupils of the fourth year, and progressively advanced books for the higher grades. Thus repetition in teaching is avoided, except what is necessary for review; and the subject can be properly covered in thirty or forty lessons each year in each grade.

The Scientific Temperance Department of the Woman's Christian Temperance Union, through its Bureau of Scientific Temperance Investigation, has during all these years kept up the exhaustive research that has furnished the necessary material for books and courses of study.

The *International Course of Study* is the embodiment of all these features, the outcome of twenty years of study as to what shall be taught on this subject, who shall be taught, and how this teaching shall be made most effective. It corrects every fallacy, directly or indirectly, that has prevailed in one part of the country or another as to the supposed value of alcoholic drinks, and suggests the scientific remedy.

The Manchester, England, *Guardian*, commenting on this Course sent out by the English committee and which is an almost verbatim copy of the *International Course*, says, "The specimen syllabus is based on a scheme drawn up for use in the United States schools, and is full of sound learning and splendid common sense. When one sees the proposed teaching set out under the several heads and graduated according to the age of the pupils, the knowledge seems to be so absolutely indispensable that one wonders how it has escaped being taught so long."

This *International Course of Study* has already been made the basis of the Scientific Temperance instruction in many of the most progressive schools of this country. The majority of eminent physicians in Great Britain have given effective testimony to its value and adaptability by recommending it to all local school boards.

Is it not the duty and privilege of temperance workers in our own ranks to co-operate in the endeavor to secure its adoption in all our schools, so that with the proper text-books the results we so ardently desire may be attained? We believe that it is.

Grammar Lessons

SIXTH YEAR

THE BRAIN AND NERVES

NOT infrequently the sixth grade of a grammar school is the most wide awake class in the building. The children are of just the right age to feel their strength, and under the direction of the right teacher these independent, ambitious little folks manage to extract more pure delight from hard work than do either older or younger pupils.

If the teaching from the lower grades up has been systematic, as outlined in the *International Course of Study*, the pupils have been given progressive lessons on the brain and nerves since the third school year and should be ready now for more detailed study of the composition and functions of the nervous system, the training it needs to fit it for ever better work, and the injury wrought by even small indulgences in alcohol and tobacco.

Many boys leave school after completing the sixth grade; for this reason the teacher should make the most of her opportunity. That as a rule she is doing so is evidenced by the fact that all over the country public school children, on being questioned, show increasingly intelligent appreciation of the laws of health, including those which point unerringly to total abstinence.

Awaken interest in the present topic by asking the pupils the day before the lesson to write on paper five reasons why a business man needs a clear brain. This may be made an exercise in language. Insist on neatness and accuracy. Let each pupil read aloud what he has written. A number of the best reasons given may be written on the blackboard and left standing until time for the lesson.

THE BRAIN

When the time for the lesson arrives, write the word, Chicago, on the board and draw diverging lines to represent the railways which run north, south, east, and west from that city.

Let the children do the same on paper at their desks.

What is meant by a railroad center?

Where do the orders come from that direct the hundreds of trains passing daily over all these roads?

Do all the train orders come from one office in Chicago? Why not? How are they issued?

How do the orders from the central office reach the different stations all along the railroads?

Erase *Chicago* and write *Brain* instead.

Where do the orders come from that enable us to walk, run, play, or do whatever we wish?

How do orders from the brain reach different parts of the body?

If necessary, explain that the brain is divided into departments, and that each issues certain orders to the different parts of the body.

Erase the word, brain, and make a blackboard sketch of the cerebrum and cerebellum.

Mark these as the department of thought, and the department of motion, letting the children do the same on their papers.

In which part of the brain is the department of thought?

In which part is the department of motion?

Refer the class to their books in answer to these questions. Then ask them to write the name, cerebrum, across "department of thought," and the name, cerebellum, across "department of motion" in their drawings, using colored pencils. Write the same in the sketch on the board.

Refer the class again to their books in answer to the following questions:

When is the cerebrum on duty? During what hours of the day does it do its hardest work?

When does it rest? How can we train it to do better work? Why is it important that the cerebrum be always in good working order?

When is the cerebellum at work? When does it rest? Why is it important that the cerebellum never make a mistake in directing the muscles?

What would be the result in a game of ball if wrong orders were sent to the muscles?

Why is the brain so carefully protected? Describe its coverings.

Has it any covering inside the skull? Read what the physiology says on this point.

MOTOR AND SENSORY NERVES

Why do we have double car tracks in our streets? Think of something in the body that corresponds to the car tracks of a steam or electric road.

Find the name of the track over which messages go from the brain to different parts of the body.

Name some of the messages that go from the brain to the muscles of your arm; to the muscles of your leg.

What does the word, motor, mean? Find it in your dictionary.

Why is motor a good word to use when we mean nerves of motion?

Find the name of the track over which messages go from different parts of the body to the brain.

Name some of the messages that go from your fingers to the brain; from your eyes to the brain; from your ears to the brain.

What does the word sensory mean? Find it in your dictionary.

Why is sensory a good word to use when we mean nerves of sense?

Lulu, pick up your pencil from the floor.

How could Lulu tell where her pencil lay?

What messages passed from her eyes to her brain?

What other message was sent before she could move her arm muscles to pick up the pencil?

Suppose you took hold of something hot enough to burn you. What messages would have to be sent to your brain and back again before you could drop it? What if these messages went too slowly?

Why is it very important to keep the nerves in good condition? Do the nerves ever get quite strong again after being injured? Refer to the physiologies on this point.

"O, but she has winning ways,
May she keep them all her days."

THE SPINAL CORD

You may all stand.

Bend forward as far as you can.

Straighten up, then bend backward slowly.

What do these movements tell you about your backbone?

Can you bend your arms or legs except at the joints? How many joints in the backbone?

Here is the backbone of a fish. It will bend back and forth like our backbones.

George, take it and see if you can tell why.

It is made up of small bones joined together by a substance that will stretch a little. What is the name of this substance?

There is something else to notice, the hole through each of these small bones.

When these holes are placed one over another, what is formed? What is enclosed in this tube? What is the name of this nerve? Tell what it looks like.

Where shall I place it in our blackboard drawing? Place it in your drawings.

Here is a skein of fine silk about as thick as the spinal cord in a person.

I will fasten it to this piece of cardboard, and with the pins we will divide off small bundles of strands up and down the skein on each side. Jennie and Ella may help.

Open your physiologies to page — and find how many pairs of spinal nerves there are in the body. Find what these nerves do.

We will take these thirty-one bundles of strands and spread them out with the pins until they fairly cover the cardboard.

This will help to show us how the nerve strands are spread out all over our bodies.

NERVE CENTRES

How many times do you think you have to breathe during the day? Do you have to remember to breathe? What would happen if you stopped breathing? What about going to sleep if we had to remember to breathe all through the night?

Do we have to think in order to keep our hearts beating? Why not? What would happen if our hearts should stop beating?

Do we have to think about digesting our food?

How does the brain manage to direct our breathing, heart beats, and digestion without our knowing anything about it?

Does the man who owns a large store try to sell all the goods himself? Whom does he have to help him?

The clerks are his assistants.

The brain has a number of assistants. They are called nerve-centers. They control our breathing, the beating of our hearts, and the digestion of our food.

How do these helpers give the brain more time to attend to other things?

Show the class where to find from their books the location of some of the most important nerve centers.

Here are some large flat beads called nail-heads. Where shall we fasten these with pins to our strands of silk to represent these nerve centers?

What would happen if these nerve centers were injured in any way? Why should we be especially careful never to hit or strike the back?

EFFECT OF ALCOHOL ON BRAIN AND NERVES

Why do we keep the ventilators open all the time and the windows too whenever we can?

Why do our heads feel clearer, and why do we find it easier to study when we breathe pure air?

What is the part of the air that our bodies need? What is oxygen? Look in your books and see.

How does the oxygen we breathe reach the brain? How does it get into the blood?

What else does the blood carry to the brain besides oxygen? What kind of food should we give the brain if we want it to do good work for us?

What kind of material will the blood have to carry to the brain if we drink any liquor that has alcohol in it?

How do we know that alcohol never does the brain any good? How do we know that it injures the brain?

Tell some of the ways in which a little alcohol may hurt the brain; some of the ways in which a good deal of alcohol hurts the brain.

Have all the paragraphs in the class text-book bearing on these points read aloud and talked over, till the pupils clearly understand the meaning of each and realize the seriousness of injuring the brain in this way, or in any other.

Additional facts may be gathered from the quotations at the close of this lesson, simplified by the teacher to the comprehension of the class, and perhaps written on the board. Among such statements may be the following:

Alcohol may so injure the brain that it can never recover.

Alcohol may keep us from doing good work with the brain.

Alcohol may make us think slowly.

A person who has taken alcohol is likely to make mistakes in his work.

A person who has taken alcohol can not work so well or so quickly as if he had not taken it.

Alcohol can turn a good man into a bad one. It can make him lazy and ugly.

A person who draws or does any kind of fine work with his hands needs steady fingers. What kind of nerves does the man who takes alcohol often have? the boy who smokes cigarettes? Find the reason.

Can a boy who smokes cigarettes expect to keep up in school with boys and girls who never touch tobacco? Why not?

Why do business men not want cigarette smokers in their offices? Where is the cigarette smoker wanted?

What will *you* do about alcohol and tobacco?

AUTHORITATIVE QUOTATIONS

ALCOHOL ESPECIALLY INJURIOUS TO NERVE TISSUE

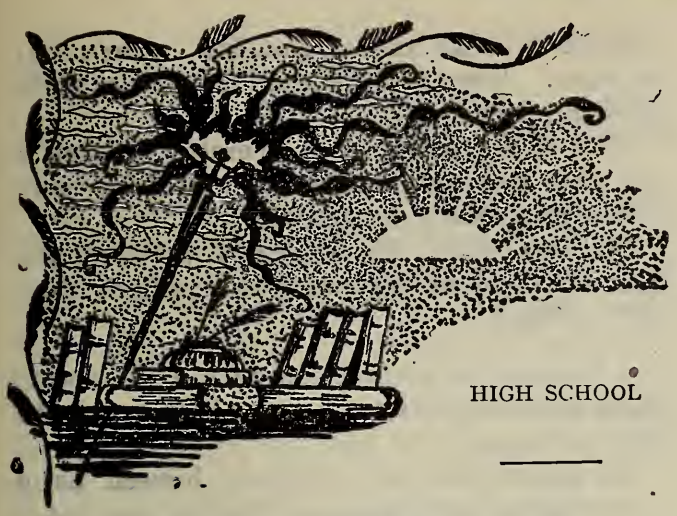
All indications point to the conclusion that it is the nervous tissue which is especially exposed to the cumulative action of the alcoholic poison. The alcohol sets up a chemical action in the nervous tissue, which at first inaugurates only imperceptible changes; but once inaugurated the process goes on until the tissue passes into a permanently diseased condition.—A. Strumpell, M. D., Berlin.

EFFECT OF ALCOHOL ON MENTAL FACULTIES

The mental faculties exhibit different modes of expressing the changes effected in them by alcohol. Certain faculties appear paralyzed, while others are very active. The judgment, the faculty by which we compare facts and ideas, and decide as to their truth, may be rendered inactive while the imaginative faculty may be made vivid and sprightly but capricious. —Andrew Baxter, M. D. in *Scottish League Journal.*

ALCOHOL LESSENS MENTAL ABILITY

Tests performed by Kraepelin and his students all show a lessening capacity for mental work and a smaller ability to keep the attention directed to one subject. Arithmetical calculations of all kinds were carried out much more slowly and with more errors, and the writing was slower and gave the impression of being that of an uneducated person who seldom had occasion to use his pen.—A. R. Cushny M. D., Professor of Materia Medica and Therapeutics, University of Michigan.



HIGH SCHOOL

ALCOHOLIC FERMENTATION

ADULTS are usually prompted by intelligence in following out any course of action, and boys and girls are not unlike them in this respect.

Teach a boy the truth in regard to alcohol,—what it is, why it is harmful, and how it affects body, mind, and character,—and he will be slow to cripple his future business ability by even moderate indulgence in drinks containing this poison. But the knowledge must come to him through his own observation and reasoning power.

Do not expect to convince high school pupils by mere dogmatic assertion of your own belief. They may listen respectfully, but they will do as they please afterwards.

The claim sometimes made that scientific investigation on the part of young students uses up time that properly belongs to book study is untenable. Original work will arouse a class as nothing else will, and mental activity tends directly to mental strength.

It is sometimes well to write upon the blackboard, a day or two before the lesson, a suggestive question and direct the pupils as to the best sources of information on the subject. For the lesson on Alcoholic Fermentation give this question:

How does alcohol get into wine, cider, or beer?

It is a good plan also to give at the end of the lesson a short quotation from some eminent authority to be memorized.

Write the quotation in a conspicuous place on the blackboard, and tell the pupils to copy it in their notebooks. Suitable quotations appear in each number of the JOURNAL, and the following, from Professor Gruber, of Munich, is particularly applicable to this lesson:

"Whether or not one is susceptible to alcohol can not be foretold. He finds out only by playing a game of chance with his own life, which is a dangerous experiment."

THE YEAST PLANT

Wash the skins and stems of a bunch of grapes in a glass of distilled water. Place a drop of this water under the microscope and let the pupils observe the cells shown.

Where did the tiny one-celled plants come from that we find in this glass of water?

There was nothing in the glass but pure water until we washed the bloom of the grapes into it.

Get another glass of distilled water. Place a drop under the microscope. You find no plant cells there.

Wash the skin of an apple in this water, and then place a drop on the slide. What do you find?

If we had other fruits here, and applied the same tests to each, we should get similar results.

These cells are yeast-plants. They are found in a dry or dormant condition on most fruit skins.

Ask the class to find from their reference books where these yeast-plants come from, and how long they can exist in a dormant state.

A day or two before giving this lesson, crush ripe grapes into a glass and let the juice stand where it will be warm. A sunny window is a good place.

At this point in the lesson take a drop of this fermenting liquid and place it under the microscope. Let the pupils view it and watch it at intervals during the day to note the multiplication by budding of the plants that were washed from the outside of the grapes into the juice when the grapes were crushed.

The yeast-plants have found a food on which they live and thrive. What is it?

Be prepared to direct the class to reference books which will answer this question.

Do these plants feed on sugar as sugar, or do they decompose it and take one or more of its elements leaving others behind?

What elements unite to form sugar?

The yeast-plants, or ferments as they are often called, take oxygen from the sugar and leave carbon dioxide and alcohol.

What makes the bubbles on top of the fermenting juice?

What makes the bubbles when you exhale through a tube into a glass of water?

What is the office of the fruit-skin? Is there any way for the yeast-plants to get into the juice of fruit while the skin remains unbroken?

Could you puncture the fruit-skin with the finest needle imaginable without carrying into the juice on the point of the needle some of these plant-cells already on the outside of the skin?

How does the point of the needle compare in size with the ferments?

While the fruit-skins remain unbroken there is no possible way for the ferments to enter the juice. Consequently, no alcohol is ever present in whole fruit.

Suppose, in eating fresh fruit which has been carefully washed (as all fruit should be before putting it in the mouth), some of the yeast-plants still adhere to the skin and we swallow them. Would alcoholic fermentation take place in our stomachs? Why not?

Refer the class to the chapter on Digestion in their text-books in answer to this question, and make sure that they understand that the digestive fluids in the stomach would destroy the plants and so prevent their growth and the consequent formation of alcohol. Authorities everywhere agree that fresh fruit is very beneficial to us.

WINE

Have in the classroom at least one reference book that will answer the following questions. Some of the regular text-books for this grade will contain the answers.

What percentage of fermented grape juice is pure alcohol?

If the grapes are exceptionally sweet, would the percentage of alcohol be larger or smaller? Why?

How are we to account for the fact that wine often contains a much larger percentage of alcohol than could have been formed in it by the yeast-plants?

Take up the subject of distillation at this point, referring the class to their books to find what distillation is, how it is carried on, and the result.

Adulterations of wines may be considered in this connection. Let the class find all they can on this topic. Bring out the fact that more wines are exported from many grape-raising sections than could possibly have been made from fruit, and that many cheap wines contain no grape-juice whatever.

Physicians' statements may be easily found to show, however, that the alcohol in wine or any other liquor is the dangerous ingredient, and far more harmful than any adulteration. This is the special point to emphasize in this connection.

Sir Frederick Treves, Surgeon to the King and one of the most famous physicians in England says that

"Alcohol is an insidious poison, in that it produces effects which seem to have only one andidote—alcohol again."

Have the class look up *insidious* in their dictionaries. What is the special danger in slight alcoholic poisoning?

Why is a poison which operates in such a way as to create a craving for more of the same poison particularly dangerous?

Do you think Sir Frederick selected the right adjective in describing the poison, alcohol? Why?

A boy gave as his opinion that a little wine taken with cake did no harm. Was he right? Why not?

He argued that one could do himself harm by eating too much cake or drinking too much wine, but that a moderate use of either would not be injurious.

Where was the flaw in his reasoning? Does eating too much cake cause one to crave more cake in increasing quantities? What is true of wine in many instances?

For what has Italy always been famous?

The whole country is one great vineyard. Travelers tell us that the soil today is as productive as it was two thousand years ago in the days of the old Romans.

Why are the Italian peasants so poverty-stricken? They are often industrious, but their energy is expended in grape-raising and wine-making. They have no money, because in that country wine is as cheap or sometimes even cheaper than water. They all drink wine. They think they could not get along without it, therefore they make no attempt to do much with any other crop.

What is the relation of their wine-drinking to their poverty?

Suppose they ate the grapes fresh or as raisins, and made no wine. What would be the result? Scientists have declared that grapes are perfect as a food.

Is it easy for people who as a race have been drinking wine for two thousand years to give up the practice? What is meant by the law of heredity?

Have you ever heard of young men who find it very difficult to resist the craving for alcohol on account of their parents having been drunkards? Such cases are not unknown.

Every one must think of the children he may have as well as of himself. and do nothing to make life hard for them.

CIDER

Wine can be manufactured from any fruit-juice. What is apple-wine?

Is there alcohol in cider?

What did we discover when we looked through the microscope at a drop of water from the glass in which we washed the apple?

Refer the class to their books to find the percentage of alcohol in cider.

People who drink cider thinking it harmless would be surprised to find that it sometimes contains ten per cent of alcohol.

Have the class find the special ways in which cider-drinking is known to injure the drinker.

Bring out the special danger in drinking sweet cider,—that no one can tell the precise moment in which it ceases to be sweet and begins to contain alcohol, and that every immoderate drinker of cider or wine or beer was once a moderate drinker and had no thought of ever being anything else.

What is the only safe course to follow?

BEER

From what is beer made?

What element forms a large part of all grains?

Could yeast-plants feed on starch? Why not?

What change takes place in the composition of sprouting grains?

When sugar has been formed, why do brewers kill the sprouting grain by heating it?

Why do they put in yeast?

What makes the froth which is always seen on beer?

What is the usual percentage of alcohol formed by the yeast in beer-making?

Refer the class to their books on these points as before.

"The sunshine drops like a leaf of gold,
From the book of light above."*

A young man once made this statement: "There is no harm in a glass of beer." Was he right or wrong? Why?

What are the conditions under which alcoholic fermentation takes place?

How does fermentation always affect the nature of the substance it acts upon? If given time and kept where the liquid is warm, what is the certain result when yeast is added to sweetened water, whether flavored with roots or bark or anything else?

How many have noticed fermentation taking place in root beer, ginger beer, or other home-made beers made with yeast? Is it safe to make any terms whatever with alcohol? Why not?

Some people advance this argument: "Children must not drink beer, but it does not harm grown people." Are they right or wrong? Why?

Yeast may serve a useful purpose; what is it?

Describe the process of bread-making with yeast. What makes the holes in a loaf of bread?

Does bread-flour contain any sugar?

What is meant by bread "rising?"

What becomes of the small quantity of alcohol which is formed?

Why is there no alcohol in well baked bread?

In summing up the points thus far brought out on the subject of alcoholic fermentation, lay special stress on the following:

Fermentation entirely changes the nature of the substance in which it occurs.

All drinks produced by fermentation contain alcohol.

Alcohol is a narcotic poison having the power when taken even in small quantities of creating a craving for itself which may become uncontrollable.

No one can tell beforehand whether or not he possesses the power to "control" himself and continue to drink only moderately, or whether, if he possesses this power himself, his descendants will possess it.

The only safe rule for any one to follow with drinks containing any alcohol is to let them entirely alone.

AUTHORITATIVE QUOTATIONS

ALCOHOL A POISON

Medical writers speak of alcohol as a poison and refer to it as a poison without apology or modification. Thus Professor Herter says, "Still a third class of poisons is to be considered. These are poisonous substances introduced from without, for the most part by way of the mouth. An example of such a poison is alcohol."

*Courtesy of the Canadian Pacific Railroad

ALCOHOL A PRODUCT OF FERMENTATION

Spirits of wine, or ethyl alcohol, or simply alcohol, is the result of the fermentation of grape sugar which takes place in the presence of the yeast fungus.—PROFESSOR BINZ, Univ. of Bonn.

WINE TOTALLY DIFFERENT FROM GRAPE JUICE

Between the sweet juice of the grape which does not intoxicate and the intoxicating wine which the drinker loves, a foreign element has entered—fermentation; that is the life of a little fungus, yeast, which feeds upon the juice of the grape and rejects the wine.

That which we drink as wine has no more to do with grape-juice than for instance the arrow-root of the plant has with the carbonic acid of the air on which it lives. The one as well as the other is the product of a chemical change which is brought about by the life process of an organism, though to be sure in quite the opposite sense, for the plant cell glorifies, in that it forms from a dead substance, as we may call it, a great source of power; while the yeast cell does exactly the opposite.—J. GAULE, M. D., Professor of Physiology, University of Zurich.

CIDER DRINKING AND INSANITY

In the report of the Burghill Asylum, England, the medical superintendent states that more people were in the asylum through cider-drinking than through any other cause.—*British Medical Journal.*

While a man who goes on an occasional debauch bequests weakness and disease to his children, the man who tipples but never gets drunk is even more likely to leave the same heritage and tendency to disease, perverted appetite and a weak will.—SIR B. W. RICHARDSON, M. D., F. R. S.

A SONG FOR AUTUMN

BY HELEN GRAY CONE

Sing good-bye to all the flowers for the happy summer hours,
When the leaves are brown and red upon the tree;
'Tis the autumn song of sorrow, for the winter's here tomorrow,
And the swallow's left the lea.

For the dew is on the meadow, and the morning's gray, sing hey!
And it's hey for a windy October day!

And the poplar boughs drop gold, as a story slowly told,
And the maple rustles crimson in the sun;
And the silver willows shiver in the breeze that's on the river,
And the happy summer's done!

For the rain has swept the meadow, and the morning's gray, sing hey!
And it's hey for a windy October day!

St. Nicholas.

CIGARETTE SMOKING

Cigarette smoking begins with an effort to be smart.

It soon becomes a pleasure—a satisfaction, and serves to bridge over a moment of nervousness or embarassment.

Next, it becomes a necessity of life, a fixed habit.

This last stage soon evolves into a third condition, a stage of fever and unrest—wandering of mind, accompanied by a loss of moral and mental control. And finally a flabbiness of tissue results through taking smoke into the bronchial tubes, where pure air is required to oxygenize the blood, and a nervous weakness follows that leaves the victim unprotected, and a prey to any sort of malady or disorder to which he may be exposed or liable.

The cigarettist dreams over his work, dawdles indefinitely, picks things up and lays them down, and proves for us again and again the maxim that the strong man is the one who can complete a task, not merely begin it.

One marked peculiarity of the cigarette fiend is that invariably he makes a great discovery; it is that cleverness, astuteness, trickery, untruth, are good substitutes for simplicity, frankness and plain common honesy.

Dishonor, perfidy, disappointment, disgrace, are the end of all.—*The Philistine.*

PHYSIOLOGY TOPICS FOR OCTOBER

PRIMARY—Correct Position in Sitting, Standing, Walking. Sense of Feeling; Location, Training. Teeth; Shape, Use, Care.

INTERMEDIATE—Care of Living and Sleeping Rooms. Cleanliness. Fresh Air. Brain, Spinal Column, Nerves; how affected by Alcohol and Tobacco. Smell, Taste, Touch; how rendered acute. Alcoholic Appetite.

ADVANCED—Digestion and Assimilation. Respiration; Breathing Organs. Voice; how produced, how trained. Fermentation. Alcoholic Liquors; Effect on Mind, Body, Character.

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The School Physiology Journal

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BOSTON, MASS.
MARY H. HUNT, EDITOR

VOL. XV. NO. 3
NOVEMBER, 1905

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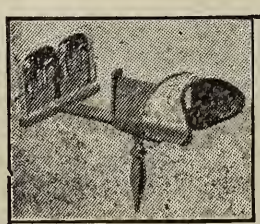

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School Physiology Journal

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IF I WAIT

BY HELEN M. RICHARDSON

I do not hear the message that
The Robin hears in spring,
Which brings him homeward from afar
On swiftly flying wing;
But still I know he's coming, and
Will find his nest and mate,
In the tree which now is leafless—
So I wait.

I can not feel the shiver that
The startled leaflet feels
As autumn's breath, frost-laden, through
Its vivid greenness steals;
And yet the change is coming, though
To me it may seem late;
And the green leaves will turn crimson
While I wait.

I can not grasp the meaning of
Earth's happiness and pain;
Yet both I know await me if
Life's best I would attain;
Each step, I trust, leads onward, and
God's universe is great;
So I'll find no incompleteness
If I wait.

The Ladies' Field.

SCIENTIFIC TEMPERANCE IN THE PULPIT

BY CHARLES SCANLON

Field Secretary of the Temperance Work of the General Assembly of the Presbyterian Churches of the United States.

THE Presbyterian church salutes the Woman's Christian Temperance Union and gratefully acknowledges its appreciation of the value and the valor of the White Ribbon Army.

With the fervor of woman's devotion you have carried the white flag of purity around the world and erased the stain of a double standard from many a conscience. Up steep and rugged ways which could be tracked only by the feet of fearless faith you have triumphantly borne the banner of righteousness and placed it high upon the rampart of truth. With dauntless courage and matchless enthusiasm you have assailed in unequal combat evils which stretch away in Alpine ranges to the ends of the earth and almost to the beginning of mankind.

But of all your labors none has been more conspicuously successful, none more fruitful of good, none farther reaching in influence, none which promises to be more enduring than your achievements in Scientific Temperance Instruction. By common consent you have made the whole world your debtor in this field of investigation.

If a minister wishes to take the triteness out of his temperance sermon and bring to his people a fresh, instructive, and inspiring message on this theme let him approach the subject from the scientific standpoint. There are of course other phases of it to be considered, but the scientific view point is comparatively a new one and will be found fruitful and helpful.

Speaking as their representative, I wish that all Presbyterian ministers would draw freely and frequently from the rich fund of scientific temperance information supplied by our distinguished countrywoman, Mrs. Mary H. Hunt of Boston, Mass., whose premiership in this field is recognized the world over.

The time is past, if it ever existed, when an educated man can innocently give himself to the infinitesimal minutiae of sacerdotal micrology or the extenuated exegesis of a casuistry, often as preposterous as it is puerile, while questions of practical and eternal moral significance await solution; while evils as gross as they are prevalent frown and glare upon him.

To preach art, history, literature, invention, travel, science, and what not, except to impart truth, and then, under cover of reverence for the gospel, to avoid only those things which, because they are right, may embarrass some individual or some organization, is to play both the coward and the hypocrite.

Morality without religion never has and never can satisfy the human soul; and religion without morality is transparent hypocrisy.

It often takes more courage to face the scorn and ridicule of opinionated conservatism than to lead men into battle. But not what is policy, not what is popular, not what other men think or say or do, but what is right, what is true, what is good, is the only worthy criterion for any man, whether it be in business, politics or religion.

This is the quality in the conquerors of old which has enshrined their names in deathless glory; it was this spirit in our forefathers which laid strong and deep the foundations of civil liberty and religious freedom. Dare we blaspheme God by asking if it is wise to do right? What merit is there in praising the valor of the fathers unless we are willing to emulate their

virtues? Compromise never permanently settled a moral question.

The Presbyterian Church does stand openly and frankly for total abstinence for the individual, for the study by all pupils in all public schools of physiology and hygiene which includes the nature and effects of alcoholic drinks and other narcotics, and for the legal suppression of the liquor traffic by the state and the nation. This the logical goal of all temperance work and to aim at anything nearer or easier is to ignore history and invite defeat. We bid godspeed to every instrumentality which seeks in a worthy way to further these ends.

Here we stand. We will not evade nor ignore nor excuse nor apologize nor condone; we will smite to kill.

It is no braggart bravado which is here suggested, no needlessly offensive personalities, no pharisaical denunciation, but a firm, kind, bold, aggressive warfare against every agency and every practice which aids or abets, sanctions or countenances this iniquitous traffic in human souls.

Our weapons are handed down from the skies, but are fashioned and tempered according to our own zeal and wisdom. The balance of battle is in God's almighty hand and there can be no question as to the final issue of the conflict.

INDIAN SUMMER

BY J. G. WHITTIER

TALK not of sad November, when a day
Of warm, glad sunshine fills the sky of noon,
And a wind, borrowed from some morn of June,
Stirs the brown grasses and the leafless spray.

On the unfrosted pool the pillared pines
Lay these long shafts of shadow; the small rill,
Singing a pleasant song of summer still,
A line of silver down the hill-slope shines.

Softly the dark green hemlocks whisper; high
Above the spires of yellowing larches show
Where the wood-pecker and home-loving crow
And jay and nuthatch winter's threat defy.

O gracious beauty, ever new and old!
O sighs and sounds of nature, doubly dear
When the low sunshine warns the closing year
Of snow-blown fields and waves of Arctic cold!

Close to my heart I fold each lovely thing
The sweet day yields, and, not disconsolate,
With the calm patience of the woods I wait
For leaf and blossom when God gives us spring!

SCIENTIFIC TEMPERANCE IN THE PUBLIC SCHOOLS

BY ALFRED L. MANIERRE*

THE liquor business is an intolerable nuisance.

No scientific demonstration as to the nature of alcohol and its effects on the human system ought to be necessary to spur men on to end a business so manifestly a public enemy.

Rationally the saloon should have had its quietus long ago, but human nature finds it easy to "take things as they are" and leave them without improvement.

If "wine is one of God's good gifts to men," if all the evils of drink are due to the "abuse" of a thing good in its "use," or if a considerable part of the community believe these things to be so, then, in spite of the manifest horrors of the liquor business, its destruction is likely to be long delayed.

The man whose general attitude of mind is fairly expressed by the familiar phrase "there's no harm in a glass of beer" can not be counted on to bestir himself to help wipe out the saloons.

Not long ago a Sunday School suburban to New York City had its first opportunity at pledge-signing. Omitting the infant class, about 125 scholars were present. Over 100 of them signed the pledge. While the signers crowded around the desk, there entered one of the deacons who was also a trustee of the district school. The proceedings were explained to him by one who expressed surprise at the ready response of so large a number.

"Oh, it's not surprising," said the deacon: "you know they are obliged to learn all about alcohol in school. My Willie knows more about it than most grown people. Nothing would induce him to drink anything with alcohol in it."

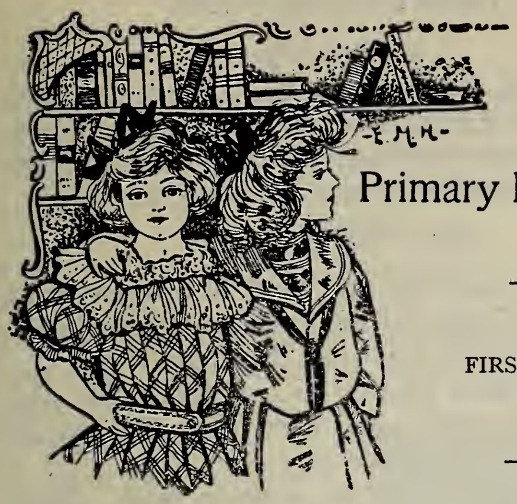
Willie's father (the deacon and school trustee) had no special interest in temperance. He grew up believing "there's no harm in a glass of beer," but Willie knows better.

There are about twenty-two million "Willies" and "Marys" coming up in this country under scientific temperance instruction laws and some day they will hold a jubilee at the obsequies of the liquor buisness, done to death by their sovreign will.

What happened in the Sunday School at S— is fact, not fancy. It can be repeated in any locality where the temperance instruction laws are fairly well enforced.

If temperance sentiment is dormant in a town, it is *prima facie* evidence that scientific temperance is being neglected in the schools. Such a community is worthy of double condemnation, for it is faithless not only to its own children but to the welfare of the entire commonwealth

*The author of this article is a brilliant young lawyer of New York City.



Primary Lessons

FIRST YEAR

FRUIT AND ITS USES

ASK the children to bring to school different kinds of fruit. Not only will this provide a variety of samples, but it will arouse the interest of the children in the subject. Perhaps it may also awaken the curiosity of the family, as a part of the lesson will undoubtedly be repeated at home by the child.

If colored crayon or colored chalk can be procured, the children will like to cut out the shapes of the fruit from paper and color them realistically.

Where it is possible to obtain clay, this is an excellent opportunity to give a lesson in modeling. The different fruits are fine models.

If number work has been begun, the teacher can arrange lessons, using the specimens of fruit.

KINDS OF FRUIT

Let us name as many kinds of fruit as we can think of. Apples, pears, peaches, oranges, plums, grapes, lemons, berries, bananas, nuts, etc.

Illustrate each by showing the fruits or pictures of each.

Which of these fruits have you seen growing?

What do we see on the apple tree in the spring?

After the white and pink blossoms are gone, what is left on the tree in their place?

When are the apples ripe? Tell about the colors of the different kinds of apples.

How does the pear grow? When is the pear ripe? Are pears and apples the same shape? Illustrate.

How do grapes grow? On a vine.

Do grapes grow separately like apples and pears? They grow in bunches. In California they raise a great many grapes. The place where grapes grow is called a vineyard.

Bananas grow in great bunches on tall trees. They grow in a land that is very hot, and are brought to us in ships from over the sea.

FRUIT GOOD TO EAT

What are all these kinds of fruit good for? Food.

When is fruit not good to eat?

Unripe fruit is apt to make us sick.

How can we tell if apples and pears are ripe? They will have brown seeds, and usually they will be somewhat soft.

If a ripe pear or apple stays too long in a warm place, what happens to it? Overripe or rotten fruit is not fit to eat. If we eat it, what is it likely to do to us?

CIDER

Sound, ripe fruit is good food, but men often crush out the juice and make from it a drink that is not at all good.

One afternoon Alice and Frank were in the orchard watching the men pick the apples.

The men divided the fruit into two piles. All the sound good fruit they put into barrels to send to market.

The apples that were small and wormy they threw in a heap on the ground.

"What are you going to do with those mean little apples?" asked Alice.

"We shall make cider of those. Here is the cider press. Come and see it."

The children went over. They found a man shoveling the apples into a great vat, where they were crushed until the juice ran out.

At first, this was clear just as it was in the apple, but there was some near by which had been standing for awhile, and it was darker in color.

"What do you use the cider for?" asked Frank.

"We let it stand in great barrels, or hogsheads, for many months.

"At first it is sweet, just apple juice, but mixed with the juice is dust from the skins.

"This dust contains some tiny plants—so tiny you could not possibly see them. After the sweet juice has stood awhile, these plants begin to grow and use the sweet part for food. As they use this up they leave in its place a poison called alcohol.

"Some people like to drink this juice that has alcohol in it.

"They call it hard cider. They do not think of the poison in it.

"If we let it stand longer another little plant begins to grow in the juice, using up the alcohol. Then it becomes sour and we have vinegar. There is no alcohol in vinegar."

"Is that what mother uses for pickles?" asked Alice.

"Yes. That is cider vinegar."

"Well," said Frank, "I'll take my apple juice in the apple after this, I think."

"So will I," said Alice."

WHY WE SHOULD NOT DRINK CIDER

Why should we not drink cider?

Because it contains a poison, alcohol.

Many people say that cider does no harm, because there is little alcohol in it. It often contains more than they think. If one gets to like cider it may make him want more and more. By and by he takes something with more alcohol than cider contains.

What, then, must we say when any one offers us cider to drink. "Thank you, I would rather take my apple juice in a big red apple."

SENTENCES.

Apples and pears are fruit.
Grapes grow in bunches.
Overripe or unripe fruit is not good to eat.
Never drink cider. There is alcohol in it.

MY KITTEN

BY EDWARD CARSWELL

OH! I had such a fright
That I trembled with fear,
I thought that my kitten
Had taken to beer.

There's a lager beer garden
Just over the way
And kitten goes over;
I saw her today.

Then I watched her come out
And, mercy! I saw
She was wiping her mouth
With her little white paw.

I caught her up quickly
And said, "Tell me true,
Have you broken your pledge?"
And she answered me "mew."

Well, then, I felt better,
For kittens, you know,
They always say "mew"
When they want to say "no."

But no badge could I find;
Not even a speck
Of the little blue ribbon
She had worn on her neck.

But then, when I carried
Her into the house,
She sprang from my arms
To run after a mouse.

And mamma then told me
To banish my fear
That kittens might steal,
But would never drink beer.

So I'll get a new ribbon;
I am so glad
That she had not been drinking;
But, oh! if she had!

GRAPES AND WINE

SECOND YEAR

BRING a dish of fruit including grapes into the schoolroom, and lead the children to see how busy the tree, shrub, or vine has been to make these fruits ready for use.

GOOD USES OF GRAPES

After as much general work of this nature as time allows, take up the grapes more in detail. Explain what each part of the grape is for.

Do we have grapes to eat soon after the leaves come out? All these fruits that are so helpful to us need time to grow.

(Trace the growth of a grape seed. Show the hard seed and a cluster of grapes, and speak of the Wonderful Power which has brought the one from the other.)

When we care very much for anything we say it is precious. Do you not think anything as precious as grapes should be put to good use?

What are the good uses of grapes? Nearly every one likes the fresh ripe grapes, and most people like the jelly that is made from them.

A BAD USE OF GRAPES

Sometimes something else is made from grapes which is not good for people. It is a drink called wine. Let me tell you how it is made.

In some parts of the land great fields of grapes are growing. These fields are called vineyards. The vines are trained on a short framework, not much higher than your heads.

When the grapes are ripe, men cut off the bunches and put them into a great trough, called a wine press.

Here the grapes are crushed between wooden rollers to make the juice run out. At first this juice is sweet and good. But after it has stood for awhile tiny plants called ferments begin to grow in it. These plants got into the juice from the skins of the grapes, when they were crushed in the wine press.

They use the sweet part of the juice, the sugar, for food and leave in its place a poison called alcohol.

Grape juice which is fermented, that is which has alcohol in it, we call wine. It is not good for us to drink. It has the power to make people who drink it wish for more and more.

THINGS TO REMEMBER

The juice in ripe fruits is good to eat.

After it has been pressed out and stood awhile it is not good to drink.

There is alcohol in it.

Alcohol is hurtful.

If we never touch it it will never harm us.

GRAIN AND BEER

THIRD YEAR

Material—specimens of different kinds of grain.

WHO can tell me where grain grows? Tell me as many kinds as you know. (Write on board.)

GRAINS WE USE

What grains give us bread, cake, johnny cake, oat meal, shredded wheat, rice pudding, macaroni, rye bread, Indian pudding?

How many of you have ever seen a field of grain? Tell about it.

GRAINS FOR COWS AND HORSES

The cows eat grass, but the farmer knows that corn meal is good for them, so he has a great deal of the corn ground which he gives to them when they need it.

When a man wishes his horses to do hard work, what does he give them? (Show oats.)

Many years ago people did not eat oatmeal, but some one must have thought that if it made horses strong, it would be good for people.

There is one grain that is more useful to us than all others. We use it every day. (Show wheat.) We call the breakfast food made from it pettijohn and cracked wheat.

"Sing now the song of fruits and flowers,
And all the daughters of the year shall dance."

Grape nuts are made of different kinds of grain.

(Speak of the difference between white flour and that made from the whole wheat, and why whole wheat flour is more nourishing.)

GRAINS FOR BIRDS

Have you ever seen birds flying over a grain field? What were they after?

Sometimes they are troublesome to the farmer when they go to his fields in flocks, but the birds know that grain is good for them.

Some grains are planted in the fall, yet the seeds do not freeze but come up in the spring. Others are planted in the spring.

(Show picture of "The Sower" by Millett page 39.)

HOW GRAIN IS RAISED

In the western part of this country there are miles and miles of grain fields. The men use machines to help them, but the men need to be strong in order to do the work.

(Let the children act out the manner in which a field is made ready for sowing, the planting of the seed, etc., or bring out the process by questions.

Show as many kinds of grains as possible and pictures of growing grain and harvesting.

Talk about the harvesting and how the grain is carried over the country.

Show what we owe to those who work early and late that we may be fed. Inspire the children with respect for those who labor.)

If time allow, each child may personate a part of the process, *e. g.*

"I am a grain of wheat."

"I am the soil in which it is planted."

"I am the plough that makes the soil ready for the wheat."

"I am the man that guides the plough."

"I am the horse that draws the plough."

"I am the harrow that smooths the ground," etc.

(In sections of the country where the work is done by machinery the statements should be varied to suit the locality.)

"Back of the loaf is the flour,
And back of the flour is the mill,
And back of the mill is the sun and the shower
And the Father's will."

(Teach to the children. Be sure they understand it.)

BEER

We have talked about the good uses of grain. There is one use to which it is put that does not help people, but harms them. There is a grain called barley. (Show specimen.)

Here is a story about it.

Once there was a large field of waving barley, many, many grains of nourishing food.

The barley was gathered and made ready to sell, packed in bags and sent to a place called a brewery.

Men emptied the barley into a large cistern or vat and poured on water enough to cover it.

They left it until each grain was twice as large as it was before and very soft.

Then they put it in a warm room where it was left to sprout. (Show a kernel of sprouted grain, or a sprouted potato if grain is not available.)

When it had sprouted and a few little rootlets had grown, it was put in a dry, warm place and left there until it was dry and the sprouts were killed.

Next it was ground, and water and yeast were added to it.

Who can tell what yeast does to bread? Yeast does not make beer rise, but it helps change the barley water to beer.

When you chew a grain of barley or wheat it tastes sweet. What do you think gives it the sweet taste?

The water soaked the sugar from the grain, and when the yeast was added a part of the sugar was changed to alcohol.

In this change a part of the good sugar was taken from the grain and something bad called alcohol took its place.

Alcohol looks like water but is very different.

If beer were all alcohol no one would drink it, because it would burn the throat and stomach and soon kill one.

Beer has only a little alcohol in it, but that little is harmful.

The great trouble with drinking beer is that the alcohol in it may make the person who drinks it want more and more.

DOCTORS TELL US BEER IS NOT GOOD FOR US

Doctors have studied about beer for years. They find it is not good for people.

Suppose it was very dry weather and a great deal of dust was blowing through your street. Would you let it come into your home, or would you try to shut it out?

Why do we try to keep out flies, spiders, mosquitos, and all things that would make the house unclean?

If we take pains to keep everything harmful out of the house we live in, how should we treat the house we always carry about with us?

If a man had a machine that he wished to have do good work, would he put anything harmful into it? Why not? He would use only that which would be good for it.

Review the main facts of the process of the making of beer.

You may write in your books these

THINGS TO REMEMBER

We should give the body only healthful drinks.
Beer is not good for us.
There is alcohol in it.
It harms the body in many ways.

ARTHUR'S DREAM

Arthur went to bed early one night and had a strange dream.

He dreamed he saw a row of queer looking little people standing on a shelf. They were about ten inches high. They had small heads, very long necks, long bodies, and no feet. They were talking, and this is what they said.

One that was dressed in yellow, whom the others called Mr. Cider, said, "I wish I was what I used to be."

"What were you?" asked one that was dressed in dark red, whose name was Mr. Grapewine.

"I was once a fruit called apples, and I was beautiful to look at and good to eat.

"One day a great many of us were put into a mill and ground. All the juice was pressed out of us.

"At first the juice was sweet and healthful, but after a few hours a part of the sugar that made the juice sweet changed into something that is called alcohol, which is hurtful.

"The alcohol spoiled me. After that, I noticed that people who drank a great deal of this juice often said silly things or were cross and disagreeable.

"I listened to what the wife of the man who was putting me into the bottle said to him.

"She said, 'I am sorry you are going to put some of this cider away, for the older it is the more harm it does.'

"The man did not mind what she said, but filled bottle after bottle. I am one of those bottles, and ever since I have wished that I could run away and hide."

"I feel just as you do," said Mr. Grape Wine. "I was never an apple. I was something called grapes; a beautiful fruit that most people like to eat, and which I have heard does them good when eaten fresh or cooked.

"The same thing happened to me that you say happened to you, and now I, too, have the power to do harm."

Then some one whose name was Mr. Beer said, "I was never the wholesome fruit of which you speak.

"I was beautiful waving grain. I haven't time to tell you how I was changed to what I am; but I know that now I often make people stupid and cross.

"Some people think because I am made of the same kind of grain that is used for bread, that I am food as well as drink.

"I know I am not, for the poisonous stuff called alcohol is now a part of me and is always ready to do harm.

"Sometimes people drink me because they think I make them feel warm for a short time, because I make the blood flow to the surface of their bodies, but in a little while they feel colder than before they drank me."

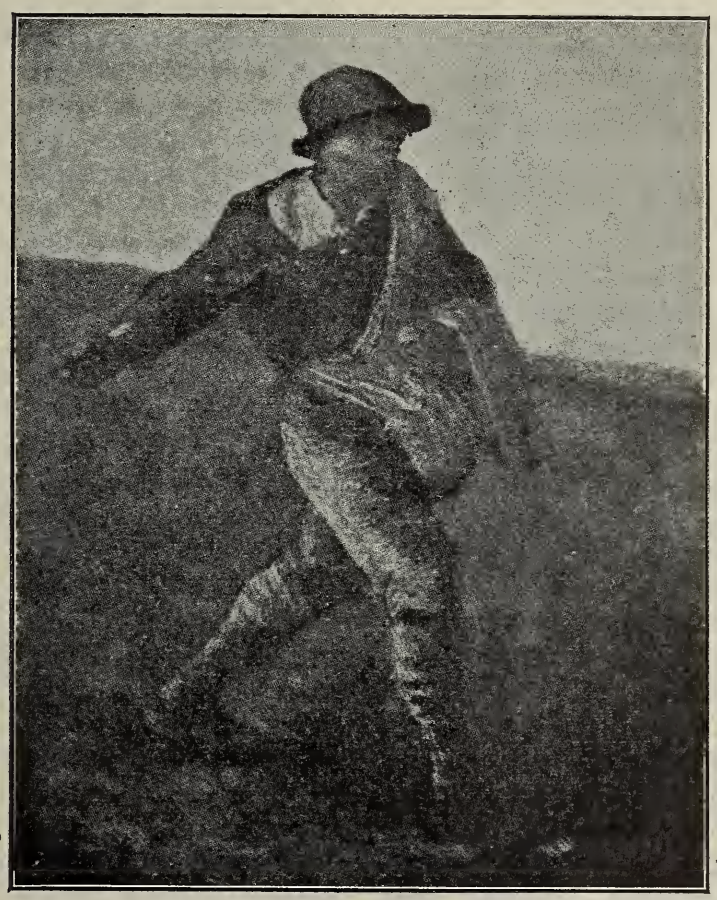
Then a brownish yellow person spoke. His name was Mr. Whisky. "What do you think I was once?" said he. "I was tall corn growing in a field. I wanted to be gathered to feed people and cattle, but instead of that I was worked over and over and many things were done to me that I do not understand, and I heard a man say,

"'I have to do this work, but I hope no boy or girl of mine will ever make corn into whisky or drink it either.'

"I thought I must be very bad if no boy or girl ought to touch me; for I like boys and girls and I knew if I had been allowed to be sweet yellow corn I could have done them good."

"It was too bad," said the others.

Then Arthur woke up, but though he lived to be an old man he never forgot this dream.



"A sower went forth to sow;
And one autumn day a golden harvest glowed."

ILLUSTRATIONS

If a sailor should take wine, beer, or whiskey, what would happen when he climbed the mast?

He might fall, because the alcohol in what he drank is likely to make his body unsteady.

A teamster is very cold when driving. He gets a drink of beer and feels warmer for a short time because the alcohol sends the blood quickly through his body. After a while, he feels colder than before he drank the beer. He has lost the heat.

Why can not a drinking man walk straight? (Just here give the hint that if we see a drunken man on the street, we should show him kindness only, or take no notice of him.)

You know that the men who train for a boat race need to be very strong. Those who train them do not allow them to eat hurtful food, nor take beer, wine, or any drink that contains alcohol, nor are they allowed to smoke. All these things are harmful and will weaken them. If harmful to grown people they are much more so to children.

Money should be used to buy only good things, things that will make us better or happier. It is foolish to spend money for drinks that harm us.

AUTHORITATIVE QUOTATIONS

WINE PRODUCES DRUNKENNESS

It is clearly ascertained that wine alone, itself, produces drunkenness with all its consequences: diseases, insanity, and crime. The Hebrew story is characteristic, which relates that the man who first planted the vine was also the first drunkard. — G. VON BUNGE, Professor of Physiological Chemistry, University of Basel.

ALCOHOL IN BEER, WINE, AND CIDER A POISON

Alcohol in any form, as brandy, wine, or beer, even in relatively very small amounts, is a poison for the human body. — DR. FRÆNKEL of Halle.

HARM IN BEER-DRINKING

Next to brandy as poison comes beer. Each limits the capacity and lowers body, mind, and soul.—COUNT VON HÄESELER, formerly Commander Sixteenth Army Corps, Germany.

THE APPETITE FOR ALCOHOL

It is because the appetite for alcohol grows on one that many who begin as moderate drinkers, and intend to remain so, become hopeless drunkards. Any alcoholic drink may cause this unnatural and uncontrollable appetite for alcohol. Since this is true, it is safe to say that the right course is not to begin to drink alcoholic liquors.—ANDREW EADIE, M. D., Professor of Physiology, Ontario Medical College for Women, Toronto.

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INDIAN SUMMER

With longing eyes the fading year looks back
To view her youthful way, as one grown old.
June smiles to her across the lengthened track,
And, lo! the world is bright with summer gold.
—CHARLES HANSON TOWNE.

ANSWERING OUR OWN PRAYERS FOR NO-SALOON

IF we are able to recognize God's answer to our prayers for no-saloons our eyes will be opened to see the following facts:

FIVE TELLING FACTS

First, that under our government of the people only the ballots of a majority of the voters can close the American saloon.

Second, that temperance teaching which does not reach the majority will educate a minority, but at the ballot box that minority will be helplessly voted down by the unreached majority.

Third, that if we want the saloon closed we must teach the majority, the law-making power, that alcohol is by nature an outlaw which should be banished from human habits and traffic.

Fourth, that compulsory scientific temperance instruction in the public schools is the one God-given method of temperance teaching that reaches the coming majorities.

Fifth, that if we are engaged in every other good work, but are neglecting scientific temperance instruction in the public schools we are not preventing the continuation of present conditions, namely, a temperance minority helpless before an opposing saloon majority.

FOUR THINGS TO DO

If our eyes are opened to see these facts, what can we do as temperance people?

If we are residents of the United States, we are living under laws that require in all the public schools the study of the nature and effects upon the human system of alcoholic drinks and other narcotics as a part of physiology and hygiene. Therefore,

1. Go to the school board and ask for the adoption of the *International Course of Study* in temperance physiology which provides for thirty or forty progressive lessons per year in this subject, beginning with the primary and ending with the first year of the high school.

2. Ask for the adoption of graded, indorsed text-books in temperance physiology for all the grades,—an oral lesson book for the use of the teacher in giving oral instruction to the primary children in the first three years who are ordinarily unable to read; a simple primer for the use of pupils in the fourth year, supplemented by oral instruction; a more advanced book for fifth and sixth year pupils; a still more advanced book for seventh and eighth year pupils; and a high school book for pupils of that grade.

3. We are praying for renewed interest in this subject on the part of teachers. Why not answer our own prayers by sending to each teacher the SCHOOL PHYSIOLOGY JOURNAL, a monthly publication, each number of which gives model lessons on this subject for the different grades, with the latest scientific facts on each topic discussed. God never does for us what we can do for ourselves.

4. Show an interest in this work in the schools by giving receptions to the teachers and by visiting the schools. Invite teachers who are known to be friendly to read papers on this subject at such receptions and at teacher's institutes. Furnish them with the latest information for such papers.

ACTION OF A GREAT CHURCH

The General Assembly of the Presbyterian Church, through its temperance committee, calls upon every pastor to preach or hold a meeting once a year upon this subject. Ask ministers to do the same whatever the denomination. Send them material which contains information as to the extent and progress of temperance education and its results in our own and other lands.

Do all this and pray for God's blessing on this work, and we shall see a steady growth in intelligent total abstinence sentiment in every community. We shall not have to wait till these children are grown up before we get a majority against the saloon. The children in the public schools in any community tell at home of what they have learned in school. Parents all through our land are thus learning the evil nature of alcoholic drinks.

GOD'S DEFENSE OF THE TRUTH

God has wonderfully blessed our efforts for securing the laws requiring this study. He has helped in the preparation of a large variety of well graded, indorsed text-books on temperance

physiology. He has defended the truths these books teach against every attack. Notably this was done in the case of the work of the Committee of Fifty which was instituted with the expectation that it would prove the indorsed textbooks to be inaccurate, but the costly experiments conducted by that committee through a period of ten years proved by experimental demonstration just the opposite of what the Committee expected, namely, that the teaching of the books in question concerning alcohol is accurate.

England, in seeking to save her own people from alcoholic destruction, is also helping us in this battle for the truth. Within the last few months a committee made up of some of the most distinguished scholars and scientific men in the English-speaking world, representing the entire medical profession of the United Kingdom—15,000 physicians—has recommended our Course of Study or scheme of topics on this subject as truths that must be taught the children to save a nation from degeneracy. They have sent this scheme of topics, which they state is based on that prepared for the schools of the United States, to every school board in England, Scotland, Ireland, and Wales for adoption. This kills forever the charge of inaccuracy against our indorsed teaching.

But all these helps will count for nothing if we do not use them as arguments for the best enforcement of our scientific temperance laws.

REACHING THE MAJORITY

In all ages God has chosen his own instrumentalities. It has pleased Him to lay upon the hearts of American men and women this matter of the temperance education of the children of a coming age. Remembering that God never does our part, we must not, while busy here and there with smaller methods, forget that He will hold us to a stern responsibility for not using instrumentalities which will reach the majority that will ultimately banish every legalized brewery, distillery, and saloon from our land.

FALLING LEAVES

BY LOUISA ADDEY

Tawny, ruby-tinted, golden,
From the young tree and the olden
Leaves drop down in shining showers
On the graves of summer flowers.

Somewhere in the empyrean
Time, methinks, half-smiling stands,
Shaking from his glass uplifted
With his gaunt and trembling hands,
Leaves, we say, of oak and beech tree,
O'er the misty autumn lands,
Through the forest, by the wayside,
They are but his golden sands!

NOVEMBER

BY ALICE CARY

THE leaves are fading and falling,
The winds are rough and wild,
The birds have ceased their calling,
But let me tell you, my child,

Though day by day as it closes,
Doth darker and colder grow,
The roots of the bright red roses
Will keep alive in the snow.

And when the winter is over,
The boughs will get new leaves,
The quail come back to the clover,
And the swallow back to the eaves.

The robin will wear on his bosom,
A vest that is bright and new,
And the loveliest wayside blossoms
Will shine with the sun and dew.

The leaves today are whirling,
The brooks are dry and dumb,
But let me tell you, my darling,
The spring is sure to come.

There must be rough, cold weather,
And wind and rains so wild,
Not all good things together,
Come to us here, my child.

So, when some dear joy loses
Its beauteous summer glow,
Think how the roots of the roses
Are kept alive under the snow.

EVIDENCE FURNISHED

It was ironing day, so Lulu, too, must use her little irons. Mamma noticed that the child was busily engaged with a pin in the operation. She would hold it in her mouth and then fasten it into the article she was ironing. "What are you doing with the pin, Lulu?" asked her mamma.

"Why, I have to put it in so as to tell how far it is ironed," replied the little girl.—*Little Chronicle.*

NO DRINKERS NEED APPLY

The Interborough Rapid Transit Company which operates the elevated and subway railway lines in New York City, has put into effect a rule against drinking which is more rigidly enforced than any other. Even the odor of liquor on a man's breath will cause instant dismissal from the company's service, and all men being employed must sign a contract not to drink.—*Banner of Gold.*

Grammar Lessons

SEVENTH OR EIGHTH YEAR

FOOD

WHAT is the essential nature of a food? Why is one substance a good food and another one a poor food or no food at all?

What is a poison?

How does a poison act upon the cell tissues of the body?

What is the difference between a food and a poison?

These questions if rightly presented are not too difficult for the consideration of eighth grade pupils, and it is important that such children everywhere should be able to answer them.

The question as to whether alcohol is a food has been given considerable attention. If it is a food, the fact serves as an excuse for drinking. If it is not a food the children are entitled to know that it is not. If it is a definite poison they are entitled to know this fact.

The teacher should inform herself upon this subject. A number of the newer text-books give definite and authoritative information upon it, and various periodicals contain articles written by men distinguished for their knowledge along scientific lines. If within reach of a large library, the teacher will have no trouble in securing these journals, and librarians in smaller places are often willing to receive suggestions from teachers regarding matter for the reading-room.

OUR NEED OF FOOD

Why do we get hungry?

Why can we get along without food for only a few hours at a time?

Why do we get hungry sooner, and require more food when we are at work than at other times?

Why does exercising in the open air make us hungry?

Why do people who do little or nothing have less appetite than people who are active?

What is appetite?

How do we grow?

Why are your bodies larger than they were a year ago?

After a person is full grown what is the chief reason for his needing food?

What is meant by the tissues of the body wearing out?

What must be constantly going on in the body to replace worn-out tissues?

I have placed a bit of raw beef under the microscope. You may all file around the room and look at it.

Alfred, make a drawing on the blackboard to illustrate what you saw.

It looked like a number of strings of tiny round beads laid close together in long rows.

Turn to page — in your books and look at the illustration.

What are these little things that look like beads?

What is said about cells on page —?

Lillian, read it aloud.

How is each part of the body built up?

Why must cell-growth take place more rapidly while your bodies are being developed than after you are fully grown?

What supplies the material for building new cells?

Why is it important that we should know just what foods will best promote cell-growth?

Look up oxygen in your dictionaries.

Where is this gas found?

How long could we live without it?

Turn to page — in your books and see.

Stanley, read aloud what is said.

When I light this candle on my desk what makes it burn?

What must always be present when anything is burning?

Look up oxidation in your dictionaries.

Burning is always oxidation. Does oxidation always produce flame? Why not?

Nellie, take this book from my desk, and read aloud to the class what is said on page —.

Frank, state in your own words what she has just read.

Oxidation must be very rapid to produce flame; when it goes on more slowly the substance acted upon is burned, or broken up into its original parts, without flame.

Place a drop of blood under the microscope and let the pupils see it.

What are corpuscles?

What is the office of the red corpuscles?

Turn to page — in your books and see.

Sterling, read aloud what is said.

While the candle is being consumed, what is produced besides flame or light?

Oxidation which is not rapid enough to produce light may produce heat.

Why are our bodies warm?

Why are they warm all over?

How does the food we eat reach all parts of the body?

How does the oxygen in the blood act upon it?

Give one reason why oxidation is necessary to life.

What is meant by energy ?

Look up that word in your dictionaries.

Read what is said about energy on page — in your books.

John, read it aloud.

What is another name for energy?

Mary, take this paper and read aloud what I have marked.

Harold, state what she has just read.

To keep the bodily processes going on, two things are necessary, heat, and work or force.

What is meant by bodily processes?

Give two reasons why oxidation is necessary to life.

Could there be any life without oxidation?

Why not?

If we ate no food, what would serve as material for oxidation in our bodies.

Why would a person who did not eat sufficient food grow thin?

What is meant by starving?

"Who gives himself with his alms feeds three,
Himself, his hungering neighbor, and me."

Could we live longer without food by keeping still or by moving about?

Look up hibernate in your dictionaries.

Think of an animal that hibernates

Why is such an animal very thin when it wakes from its winter's sleep.

KINDS OF FOOD

In opening the discussion of the kinds of food, the teacher may speak of some common example of fuel converted into energy. Perhaps the best at hand is that of the locomotive. She may speak of the fact that in order to make the engine work, fuel must be provided. She can tell them, too, that the fireman knows just how much coal or wood it will take to make the engine go a given distance, and that large manufacturing and railroad companies analyze samples of coal that they may know which will give the greatest amount of force per ton.

The amount of heat and motion which fuel produces can be exactly measured.

We take food into our bodies to supply heat and motion, and it is also possible by testing that food to tell exactly how much heat and motion it will give. In many experimental stations and laboratories men are at work finding out just how much energy foods prepared in different ways will yield.

Food will give the same amount of heat and energy if burned in a furnace, as when consumed in the body, but it would be too expensive and too bulky to use for fuel in an engine. Just so, some things that are called foods are too bulky and expensive to use in keeping up the bodily fires or processes.

If men take pains to buy the coal that will enable them to get the most work out of their engines, do you not think that people who have important work to do in the world ought to be at least as wise in selecting food or fuel for their bodies?

The engineer is particular also to use the kind of fuel that will produce the most power, and harm his engine the least. He would not think of using kindling wood or trash that would burn fiercely at first and then go down leaving him far from the city he had started for. Neither would he burn gunpowder, for that might wreck his engine even though he used only a little at a time. He uses the most reliable fuel.

Children are often tempted to eat foods like candy, rich cakes, and pickles. These correspond to kindling wood in the engine. A little does no harm, but they do not furnish steady force. Alcoholic liquors, on the other hand, are like gunpowder in the engine, and just as likely to cause a wreck of the body.

So, then, we must consider which are the right kinds of food and what quantities we need

in order to furnish heat and energy to the body without harming it.

Our bodies do for themselves something the engine can not. They repair themselves. So, in addition to heat and motion producers our food must also contain repair materials.

What should we consider in deciding what kinds of food to eat?

Why do we need different kinds?

Name several kinds of bodily tissue.

Would one kind of food be sufficient to make blood, build nerve-tissue, muscle-tissue, and bone-tissue?

Mention some foods that are good bone-builders.

What do you mean by cereals?

Mention a cereal that appears on the table at every meal.

Read what is said about bread on page - - .

George, read it aloud.

Find out before tomorrow all you can about milk, eggs, fish and all kinds of flesh-foods as muscle-builders, nerve-builders, and blood-makers.

Why are starch and sugar necessary?

Turn to page - - and read.

Harry, read it aloud.

Why is common salt necessary?

Read on page - - .

Molly, read it aloud.

Why is water necessary? What is the consistency of food when it is ready for assimilation?

Ellen, turn to page - - and read what is said about pickles as a food.

Sarah, turn to page - - and read what is said about pie.

Mildred, turn to page - - and read what is said about candy.

What effect do pepper and other spices have upon the lining of the stomach?

Turn to page - - and read.

James, read aloud what is said.

IS ALCOHOL A FOOD

What is a food?

I will write a definition of food on the board for you to learn and remember:

A food is any substance whose nature it is when taken into the body to aid its growth or furnish energy for heat or work without injuring any of its parts.

What effect is produced upon the cell tissues of the body by food?

Could a substance which produced a destructive effect upon any of the bodily tissues be called a food? Why not?

What is the right name for such a substance?

Why is alcohol not a food when judged by this definition?

What becomes of alcohol that once enters the circulation of the blood?

Where is it carried?

What effect does it produce upon cell growth in general over the whole body?

Turn to page - - in your books and read.

Morley, read aloud what is said.

What is meant by preventing development?

Look up development in your dictionaries.

Would you call anything that prevents development a food? Why not?

What is meant by retarding growth?

Look up retarding.

Would you call anything that retards growth a food? Why not?

Would eating one kind of food day after day create an uncontrollable desire for that food?

A little alcohol often creates a craving for more. Is that like a food?

It has been declared that alcohol is a food because it is oxidized in the body and so produces a certain amount of energy.

Carbolic acid may be oxidized in the body and produce energy.

Would you call carbolic acid a food? Why not?

What must a food do in addition to producing energy?

Alcohol never does anything toward building up any tissue.

Look up narcotic in your dictionaries.

Read what is said on page - - in your books on narcotic poisons.

Ella, read it aloud.

Of all the tissues in the body, which is most easily injured?

Which is the most difficult to repair?

Upon which bodily tissue does alcohol do its most deadly work?

What is the only safe course to pursue in regard to any liquor containing alcohol?

AUTHORITATIVE QUOTATIONS

ALCOHOL NOT A FOOD

A poison never can be a nourishing substance. A poison destroys the vital parts of the body, while a nourishing substance keeps them in strength and repairs waste. One and the same substance can never combine the directly opposite results of destroying and preserving; and if I expect a poison to have a nourishing effect, it were just as logical to expect that a person who has a design upon my life would do his best to preserve it. . . . There is, in fact, no substance known of which it can be said that it is at the same time a poison and a nourishment.—Max Kassowitz, M. D., Vienna, in *Die Abstinenz.*

ALCOHOL A HINDRANCE TO DIGESTION

As a tonic aid to digestion there can be no greater failure [than alcohol]. By its employment our patient often eats more than he would without it, but when he does so he merely forces his stomach to receive more than nature's good judgment considered it capable of digesting. So long as alcohol is present in the stomach, digestion remains at a standstill, as the pepsin, then free, is deposited. As a result, the food passes out of the stomach down the alimentary canal in an only partially digested condition. Diarrhoea or constipation and other digestive disturbances result from the irritation it produced.—EVAN O'NEILL KANE, M. D. in *American Medicine.*

Prof. Duggan of Johns Hopkins University found that alcohol in any form retarded digestion of starch in a marked degree.

ALCOHOL A POISON

From an exhaustive definition we shall have to class every substance as a poison which, on becoming mixed with the blood, causes a disturbance in the function of any organ. That alcohol is such a substance can not be doubted. Very appropriately has the English language named the disturbance caused by alcoholic beverages *intoxication* which by derivation means poisoning.—ADOLF FICK, M. D.

DR. H. S. ANDERS of the Philadelphia Chirurgical College and author of a standard textbook of medicine says:

"Our modern knowledge of alcohol in the human body justifies the belief that in health it is never a food in any sense, be the quantity small or large, but always a poison, biologically or physiologically speaking."

ALCOHOL DIMINISHES WORKING ABILITY

Obviously only such substances can be called food material, or be employed for food, as, like albumen, fat, and sugar, exert a non-poisonous influence in the amounts in which they reach the blood and must circulate in it in order to nourish. Although alcohol contributes energy, it diminishes working ability. Very small amounts, whose food value is insignificant, show an injurious effect upon the nervous system.—MAX GRUBER, M. D., Royal Institute of Hygiene, Munich.

TOBACCO A CAUSE OF DYSPEPSIA

"Physicians meet with thousands of cases of dyspepsia connected with the use of tobacco in some of its forms."—REUBEN D. MUSSEY, A. M., M. D., LL. D., Late Professor of Anatomy and Surgery, Dartmouth.

"And the sheep follow him, for they know his voice,
But a stranger will they not follow."

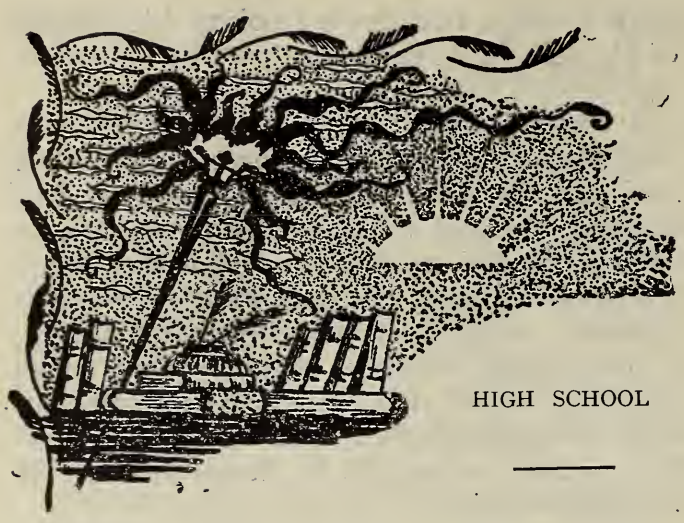
AN INDIAN SUMMER DAY

BY CHARLES HANSON TOWNE

When gray November shadowed all the land,
And June was but a distant memory,
God touched the lifeless summer's helpless hand,
And she awoke, and came to you and me.

Then, where the early snow began to fall
On hill and moor she walked with silent tread,
Bidding her golden glory cover all—
Then vanished like a spirit from the dead.

—*Youth's Companion.*



HIGH SCHOOL

CIRCULATION AND ASSIMILATION

TO explain the circulatory system and the process of assimilation is easy when the person undertaking the explanation understands the subject. Assimilation is sometimes a difficult topic, even to teachers, but if not thoroughly mastered by them there is little probability that their pupils will carry away from the lesson any clear idea of what the lesson was supposed to teach.

The circulation of the lymph as well as the blood, the work of the capillaries, the way in which the tissues are nourished, and the processes of endosmosis and exosmosis should be part of the teacher's study-work for some time before attempting to present this subject to a class.

The instructor will also do wisely to require many drawings in note books and upon blackboards, for no method has yet been devised that will so certainly fix in mind the relative size, shape, and position of the chambers of the heart, the structures of veins and arteries, and the circulation of blood. Colored chalks and crayons are especially helpful in illustrating the venous and arterial circulation and the change from arterial to venous blood in the capillaries.

The pupils have been taken pretty thoroughly over the text-book work in the eighth grade, and in the first year of the high school should be ready to do original thinking and to search to some purpose among the reference books that are attainable.

CIRCULATION

Look at the web of a frog's foot through the microscope. If done properly this will not hurt the frog. A good way is to take a piece of thin wood about three inches by six and cut a hole half an inch in diameter in one end. Wrap the frog in a wet cloth and tie thread to two of its toes. Stretch the web across the hole and place under the microscope.

Let the class file around the room and observe the circulation of the blood in the frog's web.

What causes the blood to flow so rapidly?

What controls the amount of blood in the blood-tubes? Why is the amount in certain blood-tubes of our bodies greater at some times than at others?

Explain blushing.

Why is an angry person's face red?

Why does fear cause paleness?

What is the pulse?

Name parts of the body where you can feel the pulse.

Lay your forefingers on your cheeks just in front of the ears. Count the number of beats in a minute.

Stand and take gymnastic exercises for a few moments. Count the pulse again.

What is the advantage of the circulation of the blood.

What harm might be caused by defective circulation?

Why is exercise beneficial?

Place a drop of blood on each of several slides and cover quickly.

Select a slide that shows one or more white corpuscles and let the class observe them.

Let the pupils do this for themselves at intervals during the day, and make drawings in their note books, of red and white corpuscles showing the movements of the latter as actually seen by them.

The corpuscles are single cells. What are the three parts of a cell?

Which part is lacking in the leucocytes or white corpuscles? Why? What is the probable work of these cells?

Look up scavenger in your dictionaries. What need is there of scavengers in the body?

What is meant by resisting disease?

How do people usually contract disease?

What is a germ? Find out before tomorrow something about the discovery of germs and how this discovery has affected the treatment of diseases.

How does the amoeba secure its food?

The white corpuscles seem to do the same thing with disease germs. They enclose the germs within their own bodies and literally devour them.

What would probably be the result if the disease germs succeeded in overpowering the leucocytes?

Explain lymph gland by a drawing. What is the function of these glands?

What causes boils? What is pus?

What is the work of the red corpuscles?

Why is it necessary that oxygen be carried to all parts of the body? Explain oxidation. How

long could we live if oxidation in the body stopped?

What is the fluid in which the corpuscles float?

The teacher may quickly review, with the aid of a good model and blackboard drawings, the structure of the heart and the work of the auricles, ventricles, valves, and the positions of the large arteries and veins.

What is the structure of an artery?

How does elasticity differ from muscular contraction?

Why does the blood come in spurts when an artery is cut?

Tomorrow let each one be prepared to illustrate some method of quickly stopping the flow of blood from an artery.

Why does the blood flow evenly and slowly through the capillaries?

What is the pulmonary circulation?

What exchange takes place in the capillaries of the lungs?

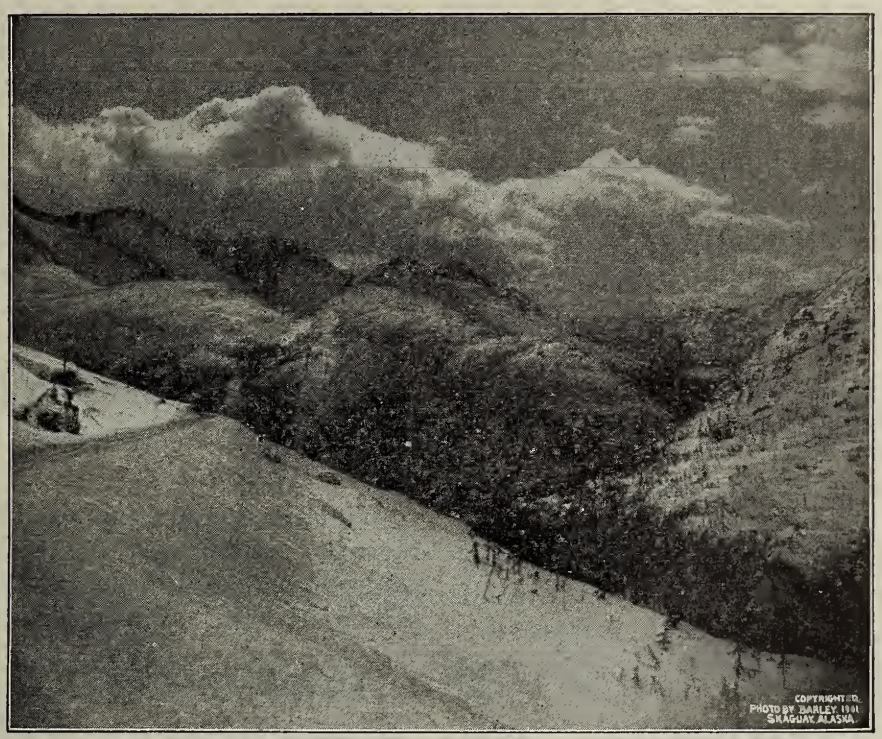
What is the special function of capillaries in other parts of the body?

Could the work of nourishing the tissues be performed by the large blood-vessels? Why not?

How do the veins of the body differ from the arteries?

What is the portal circulation?

What is the work of the liver?



"Thanks for the fleeting beauty vast and high,
With all wild loveliness that can touch the immortal in a man."*

ASSIMILATION

What is chyle? What is the consistency of chyle?

What is the work of the intestinal villi?

What are the lacteals?

Look up osmosis in your dictionaries.

The day before giving this lesson let the pupils perform some simple experiments illustrating osmosis. Let them take some pieces of bladder and tie over the ends of glass tubes. Pour into the tubes a solution of sugar, filling them to the depth of several inches. Suspend the tubes, the upper ends being left open, in glasses of water. The liquid in the tubes will soon begin to rise, being increased by the water passing through the bladder tissue. Explain the reason.

What is the thoracic duct? Where is it?

What is lymph? How is it different from blood? What are the lymphatics?

Where does the mixture of chyle and lymph enter the blood?

What is the shape of the cells which compose the bodily tissue? Could they be packed together without leaving spaces? Why are these spaces called lymph-spaces?

Explain endosmosis and exosmosis as applied to the work of the lymph in nourishing the cells and carrying off waste matter.

What is meant by cell-exchange? How would it be affected by exercise?

EFFECT OF ALCOHOL ON THE BLOOD

In your lesson on the skin you studied the affects of alcohol on the amoeba. How much alcohol in a drop of water was necessary to paralyze the amoeba?

In what respects are an amoeba and a leucocyte similar?

Alcohol effects a leucocyte just as it did the amoeba — it paralyzes it.

Considering the special function of the leucocytes, is it wise to disable them?

What would be the result of compelling the red corpuscles to take up less oxygen than they should?

What would be the further result of affecting these corpuscles in such a way that they would be unable to give up to the tissues even the amount of oxygen they had been able to absorb?

Find out ebfore tomorrow all you can regarding the effect of alcohol on the red corpuscles.

AUTHORITATIVE QUOTATIONS

ALCOHOL WEAKENS THE HEART

Alcohol produces an increased heart beat, a

*Courtesy of the Chicago and Northwestern Railroad,

fuller pulse, and a redder skin. It calls upon the reserve power of the organ, but the moment the effect has passed off the action of the heart actually weakens.—Sir Frederick Treves, M. D., LL. D., F. R. C. S., Surgeon to the King.

In strict training just those agents and influences are eliminated which either directly or indirectly depress the heart and interfere with its muscula vigor—as for example—alcohol and tobacco. They are avoided when the heart is to be driven at high pressure lest their tendency to cause myocardial weakness and to favor dilatation should come into play.—H. A. Caley, M.D., M. R. C. P., London.

ALCOHOL HARDENS THE ARTERIES

A man is as old as his arteries. If a man is 40 years of age and his arteries are as if he were 80 years of age, the man is that age, as far as his chances of life are concerned. Alcohol is only one of the causes of this hardening, I admit, but it is an important one.—G. Sims Woodhead, Professor of Pathology, Cambridge University, Eng.

ALCOHOL A TEARER DOWN OF BODILY TISSUE

Food is a builder up and supporter of bodily tissue, while alcohol is positively a tearer down and damage to it.—D. H. Mann, M. D.

Since alcohol is physiologically a poison and not a food, and essentially a drug and not a drink, the effects of its habitual ingestion are directly to produce degeneration of nearly all the bodily tissues, and indirectly to increase the liability to many diseases by lessening the powers of resistance, thus favoring fatality from such disease. Impairment of digestion is early noted.—James M. Anders, M. D., Ph. D., LL. D.

ALCOHOL HINDERS NUTRITION

It [alcohol] paralyzes the capillaries in which the vital acts of nutrition and the production of animal heat and force are carried on. Alcohol diminishes the power of osmose of the membranous tissues of the body. It also blunts the power of chemical affinities between tissues of the body and the fluids of the blood.—I. D. Mishoff, Milwaukee.

" November woods are bare and still;
November days are bright and good;
Life's noon burns up life's morning chill;
Life's night rests feet which long have stood;
Some warm, soft bed, in field or wood,

" The mother will not fail to keep
Where we can lay us 'down to sleep.' "

BOOK NOTICES

Webster's Modern Dictionary, Intermediate Edition, compiled by E. T. Roes, LL. B., Published by Laird & Lee, Chicago, 458 Pages. $.42.

This new compilation (1905) from Webster's New Standard Dictionary for all intermediate grades is of convenient size, strongly bound in silk cloth, and printed upon good paper with ample margins. It should be a pleasure for pupils to consult it, for the words are printed in such bold type as to be easily found and the definitions are clear and concise. There are also many new words which have come to be a part of our language during these years of unprecedented progress in the arts, science, and commerce. The pages devoted to word-building and rules of spelling will be especially helpful to teachers as well as pupils, while the foreign phrases, abbreviations and metric tables with their equivalents complete the list of desirable references. A number of illustrations, including those of all the presidents, and the flags of the nations in colors add to the attractiveness of this little lexicon.

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PHYSIOLOGY TOPICS FOR NOVEMBER

Primary—Food and Drink; Nutritious, Harmful. Sense of Hearing; Location, Care, Training. Tobacco: how harmful, why.

Intermediate—Necessity of Food and Drink. Process of Growth. Blood; Serum, Corpuscles. Eye and Ear Structure, Care, Training.

Advanced—Liver; Structure, Functions, how affected by Alcohol. Food. Absorption. Assimilation. Oxidation. Circulation.

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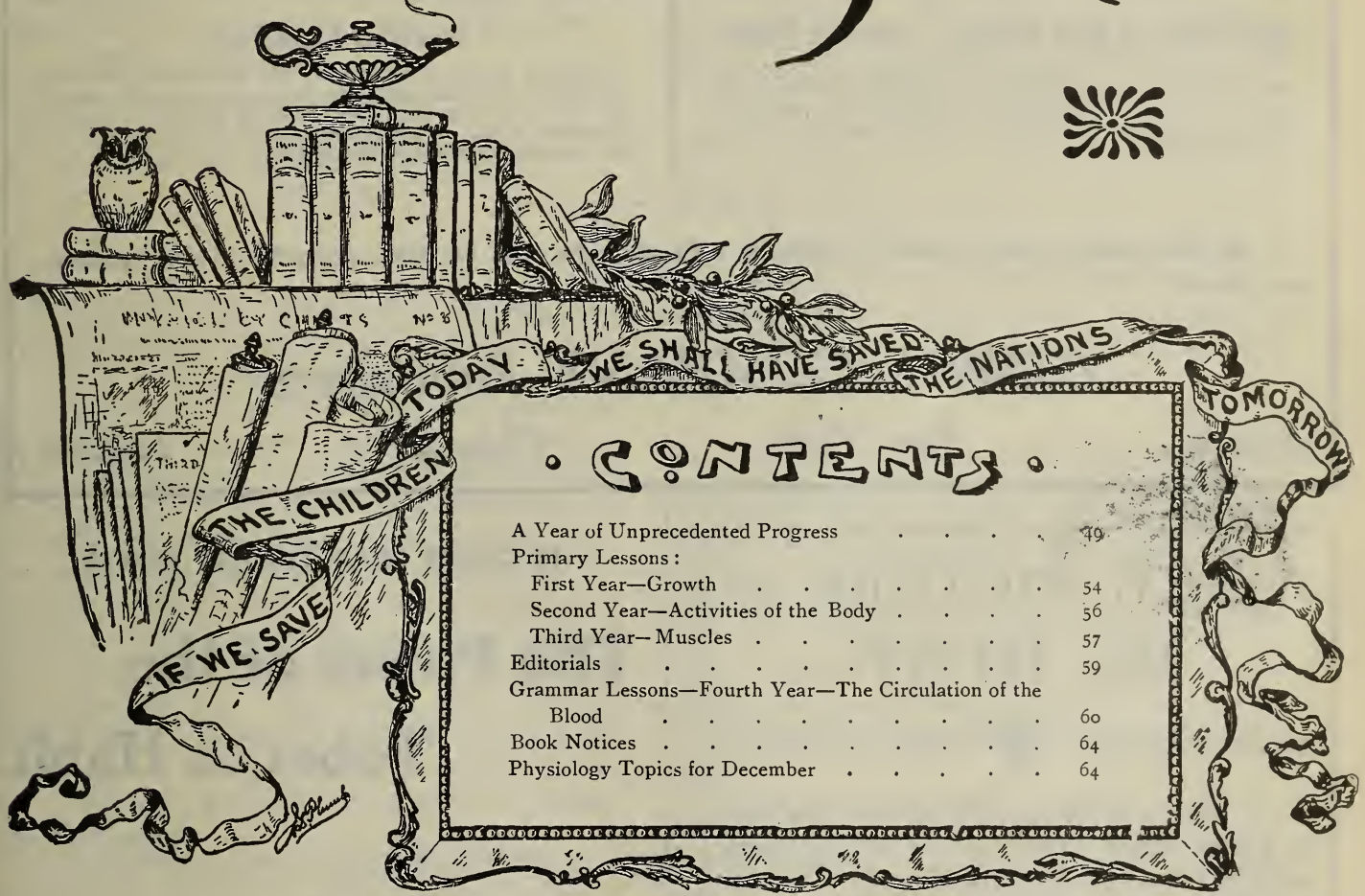

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Teachers of higher schools will find this volume the most satisfactory of physiologies. It is designed to combine a standard text with a practical and carefully prepared course in laboratory work. The statements are simple and accurate and the presentation is sufficiently complete.

An illustrated announcement of Blaisdell's Physiologies will be sent, postpaid to any address on request.

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A NEW PICTURE *of* MRS. HUNT

In response to the many requests that have come for a large portrait of the World and National Superintendent of Scientific Temperance Instruction, suitable for framing, we take pleasure in announcing that we can now send such a picture, 18 by 22 1-2, inside measurements, securely packed and postpaid for $1.00

It is a reproduction of the fine photograph of Mrs. Hunt which appeared on the first page of the December JOURNAL. We hope many of our readers will avail themselves of this opportunity to secure one of these excellent pictures of the leader of Scientific Temperance for their local schools.

School Physiology Journal

23 TRULL STREET, BOSTON, MASSACHUSETTS

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School Physiology Journal

23 Trull Street, Boston, Mass.

School Physiology Journal

Vol. XV *BOSTON, DECEMBER, 1905* *No. 4*

THE BRIGHT SIDE

BY WILLIS BOYD ALLEN

TWO sorry things there be;
Ay, three;
A nest from which the nestlings have been taken;
A lamb forsaken;
A red rose by the wild wind rudely shaken.

Of glad things there be more;
Ay, four!
A bird above the old nest blithely singing;
A red rose clinging
In safety to a rock; a shepherd bringing
A lamb, found, in his arms; and—Christmas
Bells a-ringing!

A YEAR OF UNPRECEDENTED PROGRESS

BY MARY H. HUNT

IN estimating the strength of a nation, inasmuch as the character and achieving ability of its people are more than the wealth of its mines, fields, and factories, we do well in the midst of the greatest material prosperity a nation ever enjoyed to pause and inquire what of the progress of the battle against the use of alcoholic beverages, because the use of such beverages is the greatest of all menaces to the material, moral, and spiritual welfare and achieving ability of any people. The saloon in this country stands for alcohol with all its direful consequences. Therefore, when we tell whether we are gaining in the battle against the saloon we are telling whether our nation is on the up or down grade in the progress of Christian civilization.

To insure success, our battle against alcohol must be concentrated on the cause that is responsible for alcoholic habits and consequent degeneracy. That cause is misapprehension as to the real nature and effects of alcohol, and the education that will remove this misapprehension must reach the whole people.

For centuries human beings have believed and acted on the belief that alcohol, taken in moderation, is a safe beverage, ignorant of the truth that it is the nature of this substance when moderately used to lead to its immoderate use and to consequent destruction. If we are gaining in correcting this fatal popular misapprehension we are moving upward. What do the reports of this year show?

THE FACTS ARE WITH US

For the last twenty-five years science has been pouring in her testimony against alcohol, and never more clearly than during the past year. The gist of this testimony is well given in the following sentence in an article by Sir Frederick Treves, M. D., of England, Surgeon to the King:

"Alcohol is an insidious poison with only one antidote,—alcohol again." Another authority comes to the equally terse conclusion that "We must exterminate alcohol as a beverage or it will exterminate us."

The *London Times*, referring to this great volume of scientific testimony, and to the plan, new there, of teaching the same as a part of hygiene to the children in the public schools of the United Kingdom, looks forward confidently to a time when "a belief in the strengthening and supporting qualities of alcohol will become as obsolete as a belief in witchcraft."

THE MEANS OF SPREADING THE TRUTH IS AT HAND

The testimony of science as to the character and effects of alcohol, as it has accumulated during the past twenty five years, has been collected in this country and is on file for ready use in our Bureau of Scientific Temperance Investigation, and is and has been of invaluable service both in defending and advancing the truth that is the fundamental weapon in this warfare.

This nation of 80,000,000 people legally requires that these truths in connection with other laws of health shall be taught the 22,000,000 children of school age through the public schools. Temperance education laws alone amount to little. Sweden, for example, has had for years a temperance education law which has been comparatively useless because that country has had practically no temperance physiology text-books in the Swedish language.

We have a large and increasing variety of text-books on this subject adapted to all grades of pupils, which the combined powers of evil have tried in vain to prove inaccurate. We have carefully graded courses of study showing

just what should be taught progressively from the first primary through the first year of the high school. We have also an educational journal which gives the needed pedagogical information to the teachers of this branch. Thus we have the same help for the pursuit of this study that we have for others, in other words, we have all the machinery needed to secure the education of our coming citizens in the truth against alcohol and in favor of obedience to the laws of health. Everything is ready at hand to do with.

THE INDIVIDUAL BEHIND THE MACHINE

But here, as in every case, the individual behind the machine is an essential factor in the output. The first individual influence in this case is the mother heart. Are the mothers and other Christian people awake to their responsibility in looking after the details essential to the inforcement of these laws in the schools of their own localities and states? If they are, the prophecy will be realized that "America will yet produce the finest type of human beings the world has ever seen." What do the reports of this year show?

NEW ENGLAND

In the New England division of our country, Maine, New Hampshire, Rhode Island, and even Connecticut which has weakened its scientific temperance instruction law report gain in increased interest in the study and consequent gain in temperance sentiment. Maine has adopted for the entire state the International Course of Study. The report adds, "To scientific temperance instruction in the public schools is largely due the strong temperance sentiment existing in Maine today. When our legislators have turned down some attack upon our prohibitory law it is no uncommon occurrence for some of our prominent men to pay a glowing tribute to this instruction and the results which it brings about."

The subscriptions for the SCHOOL PHYSIOLOGY JOURNAL are a good barometer of the interest of any locality in temperance physiology. There is need of gain in this respect for New England. That the cause has prospered to an extent despite the influence and unjust attacks of the Committee of Fifty and their allies, a committee which has been powerful in this section, is evidence of God's plans of mercy for our race.

MIDDLE AND MIDDLE WESTERN STATES

The reports from the middle and the middle western states, including Kansas, Nebraska, Missouri, and the Dakotas are highly encouraging. This means much for the future of our nation, showing that we are not on the losing but on the winning side in the educational battle against alcohol and its consequent degeneracy, for in these states is a majority of the 80,000,000 people of the United States. When a majority of the people of this republic realize that we must exterminate alcohol as a beverage or it will exterminate us, we have passed the danger line.

New York, our most populous state, has a stringent law fairly well inforced. Every child in her public schools is legally required to have at least thirty lessons per year in this study which is resulting in a marked growth in temperance sentiment throughout the state.

Sentiment favorable to this study on the part of superintendents and principals of schools is reported throughout this section of the middle and middle western states. The president of the National Educational Association, who is also superintendent of schools in Pennsylvania, has recommended the International Course of Study for the schools of that state. The State Teachers' Association of Nebraska has recommended the same Course for adoption by the next meeting of that body.

In the District of Columbia the outlook is very encouraging. The *New Century* indorsed physiologies have been adopted in the first three grades and in the sixth, with good prospects for the seventh and eighth later on. The superintendent of schools declares that scientific temperance shall be satisfactorily taught hereafter.

THE ROCKY MOUNTAIN AND PACIFIC COAST STATES

The Pacific coast states with Colorado and Montana report gain in inforcement of their scientific temperance instruction laws and in enthusiastic co-operation of teachers and parents in this education for the children. California is in the midst of a struggle for the adoption of a greatly needed series of indorsed text-books in temperance physiology to take the place of the defective state books. Here, as in other states, there is an urgent call for competent instruction at institutes and for other helps for teachers on this subject. The following sentence from the report of Southern California shows a grasp of the deep meaning of this temperance education movement:

"The full dignity and tremendous possibilities of this national opportunity are but beginning to be realized; and, if we but do our part faithfully, the coming generations are won for purity and temperance."

Montana reports, "If we can keep and inforce our scientific temperance instruction law, the time is not far distant when prohibition will be established."

THE SOUTHERN STATES

The reports from the southern states show a gain as compared with preceding years.

Tennessee has had the past year a sharp fight for the adoption of a graded series of scientific temperance instruction text-books. Although they lost the battle, it had an educating influence. They will win next time.

Kentucky has secured for the state the adoption of two books of the *New Century* series for the next five years. It is a matter of regret that the adoption did not include books for the lower grades as well as those for more advanced classes.

Mississippi school officials support the law; a set of textbooks has been adopted for the state which are now going through revision to our standards by the National Scientific Temperance Department, with the expectation that these will soon be indorsed.

Virginia has pushed the prize essay work with fine results; gained the attention and interest of the institute superintendent and 1000 teachers, and persuaded at least one county to place the JOURNAL in every school.

The state president of Texas, Mrs. Helen M. Stoddard, sends the following incident related by a state legislator as to the influence of scientific temperance instruction in her state, two-thirds of which is under prohibition law:

"The lasting glory of our life depends
Upon a little child, a stable, and a star."

"One of my constituents on the Rio Grande, a wine grower, is very proud that his boy will not touch his wine. He says, 'My poy iss de smartes' poy in Texas. He vill not touch my vine, and it iss de pest vine ever made, but dat poy studies in de pooks dat it iss pad, and he touch it not. He iss de smartes' poy! I tells you.'"

Certain states have done particularly good work along certain lines of scientific temperance and deserve special mention.

In New England, New Hampshire points to an entire change of sentiment on the part of the whole community from indifference or opposition to a belief in this teaching.

In the middle and middle western states, Delaware has developed prize essay work to a high degree of perfection and has voted to put the JOURNAL in every school in the state.

In the western states, California reports remarkably fine work in scientific temperance in many of the colleges and higher institutions of learning.

Any one who turns over the files of the reports of this work for the last ten years will see that while there has been a steady gain in a sort of geometrical progression from year to year, the gain this year far exceeds that of any other like period.

TWO CAUSES FOR THE INCREASED GAIN

First, the wide reading throughout the country of the government document, Senate Document No. 171, the *Reply* to the Committee of Fifty, which not only exposed the fallacious charges of that committee against the accuracy and desirability of this study but showed that the committee's own experiments, when honestly interpreted, proved the statements in the indorsed books concerning alcohol to be accurate.

Second, the action of the British medical profession, 15,000 strong, which, profoundly moved by the greater sobriety and consequent greater producing ability of the American workmen, has petitioned for such public school study of hygiene and temperance as we have in America and, acting through a committee of distinguished scientists, has recommended the course prepared by this Department to every school board in England, Scotland, Ireland, and Wales.

These two pieces of evidence removed the last doubts as to the accuracy and desirability of our public school teaching concerning alcohol and other laws of health, doubts that until removed dampened the ardor of otherwise enthusiastic friends of this educational method for preventing the greatest curse of our age, alcoholism. The defense of the truth has been God's work and "it is marvelous in our eyes."

INDORSEMENT OF AMERICAN PHYSICIANS

American physicians are also among the warm advocates of this form of education. At the last annual meeting of the American Medical Association, physicians representing the Society for the Study of Alcohol and Other Narcotics unanimously and enthusiastically passed resolutions declaring that the public school teaching of hygiene and physiology, including the nature and effects of alcohol and other narcotics, is resulting in better obedience to the laws of health and in a growing sentiment in favor of public sanitation and total abstinence, and in the rapidly increasing prohibition of alcohol in industrial employments.

Another national medical society, the American Academy of Medicine, at its last annual meeting paid a glowing tribute to the present school literature on temperance physiology. The committee presenting the report traced the evolution of the books from the beginning to the present, pointing out the great progress in form, style, subject matter, and adaptation to grade, and declared that "the indorsed books thus far have initiated the majority of practical improvements, are better adapted, more nearly complete, and more nearly on pedagogic lines." The *New Century* series in particular is commended for its manifest superiority.

The advantages of "indorsement" of physiologies is also set forth by this committee.

Indorsement means that a committee of specialists, at present six in number, and including the president of the Illinois State Board of Health, a member of the faculty of the New York School of Clinical Medicine, physicians, a distinguished clergyman and philanthropist, together with the national superintendent of this department, "trained by years of practice in criticism of school physiologies, students of the problems involved from teachers', pupils', authors', public, and scientific temperance view points, systematically go over the volume, noting not only errors as to the nature and physiologic effects of alcohol, but also errors of English, indefiniteness, illogical statements, repetition, exaggeration, unnecessary difficulties, unsuitable words, inconsistencies, dogmatism instead of explanation, scientific inaccuracies, poor taste."

The advantages of such an examination are too obvious for comment. There are ample openings also, as is stated by this committee, "for other text-books, methods, teachings, to any interested in hygiene including temperance for physiologic reasons, who *have the capacity* to take advantage of such openings to demonstrate better ideas."

REVISION OF TEXT-BOOKS

The triumphant refutation of every attack upon scientific temperance instruction is bearing rich fruit in the correction of public sentiment. This is shown by the fact that authors and publishers of books issued under the influence of Atwater and his school are now seeking to have their books revised in accordance with the standards first established in our own country and now being adopted by other nations, and which are supported by the findings of the Bureau of Scientific Temperance Investigation.

This is an epoch-making event, and shows not only the triumph of truth but that it is to be universally given to the children of this country in language adapted to all grades of our public schools.

IMMIGRATION

The emergencies of our times demand still greater gain for the coming year if we are not to retrograde.

During the last two years, 2,000,000 people have come to our shores from other lands bringing with them old world drinking ideas and habits. All too soon the male adults among them, if we do not teach them better as we may through their children in our public schools, will swell the license vote, thus helping to fasten upon us that abomination of desolation, the saloon.

We have no other institution which reaches these people and all others so universally as do our public schools. These foreign born children are in the greatest numbers in the lower grades of these schools. There they can be taught in simple language God's reasons for total abstinence written in their own bodies, and that such abstinence means true liberty. To neglect to teach this subject throughout the grades, with every possible help of suitable books for pupils' use as soon as they can read, is to give the future of our country to the pitiless saloon.

CIGARETTE SMOKERS AN EVIDENCE OF THE NEGLECT OF THIS STUDY IN THE LOWER GRADES

The fact that so many school boys of today are being ruined by smoking cigarettes is *prima facie* evidence that school officials are neglecting to provide, as the law requires, for the pursuit of this study with its warning against tobacco as well as all other narcotics in the lower grades, beginning with the first primary. The cigarette fiends come from schools where this study is not begun regularly, with books for pupils' use, until the fourth or fifth grades or later. This is beginning too late, because it comes after the habit has been formed.

WORK AT DEPARTMENT HEADQUARTERS

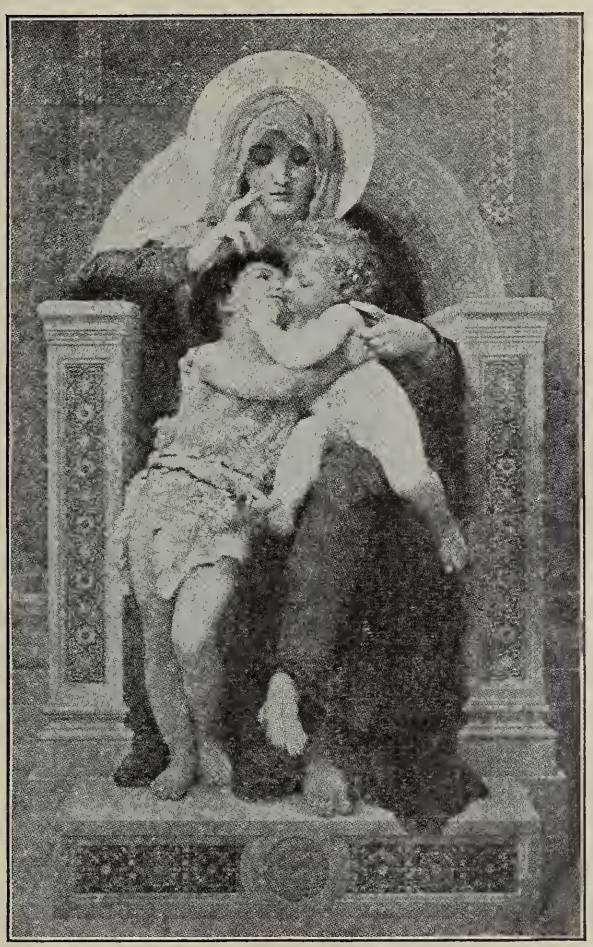
The growth of this work throughout the country has given us at 23 Trull street, the national

headquarters of this Bureau and Department, a year of exhausting labor. More than 10,000 letters have been sent out the past year to every part of the world by this Department and more than 1,000,000 pages of printed matter have been issued, including the SCHOOL PHYSIOLOGY JOURNAL and leaflets meeting every phase of the need as each has manifested itself.

The work of revising text-books has been and is unusually arduous, calling for expensive research through the Bureau of Scientific Temperance Investigation. Five secretaries are constantly employed, and another is imperatively needed. If the demands of the work, financial and otherwise, can be met, the prospect now is that it will not be long before all the school literature on this subject will be abreast of the latest findings of science, which teach unqualifiedly total abstinence from alcohol and other narcotics, as well as obedience to the other laws of health.

Then give us ten years of thorough inforcement of our temperance education laws, especially in the lower grades, and a new generation of intelligent total abstainers will take the place of the saloon patrons and voters of today. It depends upon the temperance people of America whether this prophecy is fulfilled.

From the Annual Report of the Department of Scientific Temperance Instruction, to the National Convention of the Woman's Christian Temperance Union, held in Los Angeles, Cal., Oct. 27-Nov. 1, 1905.



"Her lips are warmed with mother-love
And blessedness."

CHRISTMAS RADIANCE

BY C. JELF-SHARP

WHEN day draws near its close,
The liberal radiance of the western skies
O'er land and sea before our gladdened eyes
A sunset glamour throws.

And Christmas-time thus comes,
Heaven-sent, to light the evening of the year
And scatter kindly radiance far and near
Upon our hearts and homes.

Lift up your eyes, and fill
Your minds, my friends, with freely given light!
Open your hearts to radiance still more bright—
The spirit of good-will!

SLEEP WITHOUT DRUGS

Wakefulness is caused by too great a supply of blood in the brain. Whatever, therefore, tends to decrease the force and volume of the blood stream which supplies the brain will naturally tend to promote sleep.

Long, deep breathing increases the supply of blood in the lungs and calls it away from the brain. Provide every facility for admitting pure air to the sleeping rooms. Open windows and doors, avoiding draughts. Have an ample supply of warm, light clothing on the bed. Breathe slowly and deeply until sleep comes.

A warm foot-bath or a glass of hot water or milk will call the blood away from the brain to the stomach. See that the feet are thoroughly warm before going to bed.

Take plenty of outdoor exercise, walking, riding, bicycling, swimming, rowing,—whatever may be most convenient; eat simple, easily digested food, including a good supply of fruit; avoid all kinds of alcoholic drinks, drugs, even tea and coffee; and drop all worries and disturbing thoughts, substituting a feeling of good will toward the rest of the world.

Try this prescription if you do not sleep well.

THE POWER AND THE GLORY

BY EMERY POTTLE

Strange, we so toil to fashion for our unseen ends
The splendors that the tarnish of this world doth mar,—
Such palaces that crumble to a ruined age,
Such garbled memories upon Fame's fragile page,—
When all the lasting glory of our life depends
Upon a little Child, a stable, and a star.

Primary Lessons

FIRST YEAR

GROWTH

TO illustrate this topic, the teacher should have planted about three weeks beforehand beans or corn in four pots.

The first pot should contain good earth, be well watered, and stand in a sunny window. The second should have good earth and stand in the sun, but without water. The third should have plenty of water and sunshine, but be filled with sawdust. The fourth should hold good earth and be well watered, but stay in the dark. It would be interesting also to have a sprouted acorn or some other seedling with the little tree just growing out of it to show the class.

WHAT GROWTH IS

When you put on the clothes which you wore last year, they do not fit you. Why not?

See this shoe (holding up a baby's shoe). Four or five years ago you wore a shoe like this. Can you put it on now? What has happened to your foot?

GROWTH OF PLANTS

Here is a bean (holding it up for inspection). Three weeks ago I put a bean that looked just like this one in this pot of earth.

I put the pot in the window where the sun shone on it, and watered it every day. What do you think happened to the bean I planted?

Three or four days later I found a tiny green sprout growing from it. I watered it well and soon I had this little plant (holding up the plant before mentioned).

What has happened in the three weeks? The bean has grown.

Let us find out what is needed to make the bean grow.

Blanche and Richard decided one day that they wanted to have some plants. They went to mother and she gave each one a few beans and a flower pot.

"Fill your pots with earth and plant the beans." said mother. "It will not take long for them to sprout."

So Blanche and Richard ran out into the garden, filled the pots with earth, and planted the beans. They watered them well. Richard said,

"I shall put mine in the nursery window. That is a good place for it."

But Blanche said, "Oh, no! I am afraid mine would get broken there. I shall put mine in the closet."

Richard put his on the window sill and forgot all about it. At first the sunshine and the moist earth in which he had planted it were good for the bean, and it started bravely to spring up.

Blanche, on her part, took great care of her bean. She watered it every day, and hers began to grow.

About three weeks later mother asked the two children about their plants.

"Oh, I forgot all about mine," said Richard. "I'll go find it."

After a few moments he returned with his plant which looked like this: (Teacher shows the plant that had no water).

What was the matter with Richard's plant? Why did it not grow?

What is one thing that all growing plants need?

They need water.

Blanche brought her plant out of the closet.

"Oh! mother," she said, "I don't know what is the matter with mine. I have watered it every day but it doesn't look very green."

She brought her mother a plant like this: (Teacher shows the plant kept in the dark).

What was the matter with Blanche's plant?

What does a plant need besides water to make it strong? It must have sunshine.

"Well," said Richard, "if water and sunshine are so good to make plants grow, I'm going to have a plant that gets a great deal of both."

So he threw his poor dried-up beans away and filling a jar with sawdust and water, he planted some more beans and set them in the window.

At the same time Blanche put some fresh beans into a pot of earth and set it beside Richard's in the sun.

In a few weeks Richard's plant looked like this, (holding up the bean planted in sawdust). But Blanche's had grown into sturdy plants like these, (showing good plants).

What had Blanche's beans that Richard's had not? Earth.

Plants get food from the earth.

What three things do plants need in order to grow well?

They need water, sunshine, food.

SENTENCES

Plants need food.
Plants need water.
Plants need sunshine.
They can not live without them.

GROWTH OF ANIMALS

Here is a little kitten which Mary has brought to school. What will the kitten grow to be some day? A big cat.

What does the kitten need if she is to grow big? Food.

Does she need anything else? Water.

Kitty must eat and drink.

But if kitty were shut up in a tight box with plenty to eat and drink, would she be happy?

She would die without fresh air.

Kitty must have food, water, air.

Does kitty just eat, drink and breathe? She runs and plays,—she needs exercise.

After she has played a while how does she feel? When she is tired what does she do?

She needs rest and sleep.

The kitty has to have food, water, fresh air, exercise and rest.

GROWTH OF CHILDREN

How many of these things do boys and girls need? Do they need food?

When do you eat? When you are hungry.

When do you drink? When thirsty.

When do you need fresh air? All the time.

When do you need exercise? Every day.

When do you need to rest? When tired.

George and Henry were next door neighbors.

They were the same age, and every birthday they stood up against the wall, and their fathers drew lines to show how tall each boy was.

They kept along pretty evenly until the fifth birthday.

George was very fond of playing ball, flying a kite, and rolling a hoop. He used to play out of doors before school and after school.

My, how hungry and thirsty he was when meal time came! He would eat a bowl of oatmeal, bread and butter, and other good things.

When night came he was ready to go to bed and sleep till morning.

Henry did not like to play out of doors.

He ate a great deal of candy and cake. At meal time he was not hungry.

When evening came he was not ready for bed, and he would beg to sit up till late.

When the next birthday came George had grown fast. He was tall and strong and well.

But poor Henry! not only had he failed to grow so tall, but he was pale and ill.

He needed good food and water, fresh air, plenty of sleep, and exercise.

What are the five things that we all need?

We need good food, water, fresh air, plenty of sleep and exercise. Without them we can not be strong and well.

Waiting for Santa Claus.

SENTENCES

We must have food.
We need water.
We can not live without air.
We need exercise.
We should have plenty of sleep.

HINDRANCES TO GROWTH

What kind of food is good for boys and g rls?

Name some kinds of food that will make you grow strong.

What kind of food ought we to eat?

Name some things that are not good for boys and girls.

Is candy a good food? Name some kinds of candy that are good if you do not eat too much.

When should we not eat candy? When may we eat it without harm?

What must we have besides food?

What are good drinks?

Name some drinks that are not good for boys and girls; some that we should never taste.

When the sunshine comes in the window, what do you see in the sunbeams? What are those specks?

If I should shake some pepper in the room, what would you have to do?

Air that is full of dust or pepper or anything else is not good for us. We need pure air to breathe.

If some one were smoking in the room what would happen to the air? Is air filled with tobacco smoke good to breathe? Why not?

How about the person who is smoking—can he help getting some of the smoke? Is it good for him?

A boy who smokes cigarettes seldom grows tall and strong and straight.

Let me tell you a story about

THE BOY WHO STOPPED GROWING

There was a little boy named Harry who lived in the country.

All day long he lived out doors, and his cheeks were as red as apples.

His father kept cows and Harry had plenty of nice milk to drink. There were hens, too, on the farm and every day Harry had a nice fresh egg.

Do you wonder that he grew fast?

He was the strongest boy of his age in the village. He could run farther and faster than Sam who was a year older.

In school he did well in his studies, and when the teacher asked for a boy to do something for her, there was never a boy more willing and kind than Harry.

His teacher said at Christmas that if he did as well the second half of the year as he had the first he should have double promotion. How pleased Harry was as he went home and told his mother!

But the last of February the teacher began to think that something was the matter with Harry. Instead of doing good work in school, he began to fail in his lessons.

Day after day he answered "I don't know" to her questions.

He was cross and fretful. His mother noticed that he did not eat much dinner or supper. He wanted to go off alone.

One day the teacher was going along the road at dusk. She smelled tobacco smoke.

What do you think she saw?

Harry was coming, smoking a cigarette.

Now she knew what was the matter with him. He told her that he had been smoking for several weeks.

His teacher told him how much harm cigarette smoking does boys who are growing. It hinders their growth, makes them dull, and gets their bodies out of order.

Harry promised her that he would not smoke any more, and he did not, although he had a hard time trying to stop.

SENTENCES

Rich food is not good for me.
I do not drink tea and coffee.
Wine and beer will hurt me.
Smoking will make me dull.

ACTIVITIES OF THE BODY

SECOND YEAR

PLEASE tell me the names of some things that are useful, and why they are so.

Name a part of your body and tell its use.

Which do you think is the most useful part of your body?

With which part can you do the most things?

What parts of his body does a carpenter use when he builds a fence?

A shoemaker when he makes a shoe?

The photographer?

The person who telephones?

The man who keeps the street lights in order?

The farmer? the sailor? the soldier?

The bird in building its nest?

The beaver in making its home?

Ask several children to stand and name a very useful part of any animal.

Why can you do more things than an animal can?

What can they do that you can not do?

What parts of your body can you lose and still live?

What parts do you need to keep you alive?

Name the parts of the head. How is each part useful to you?

Name the parts of the arms. Tell some of the ways in which each part is useful.

Why does your body need a head? a neck? arms?

Name the parts of the body trunk; the parts of the leg. How is each useful?

Why does your body need a trunk? legs? feet?

THINGS TO REMEMBER

We need all parts of our bodies.

Each part has work to do.

The head and the trunk hold the parts that keep us alive.

We do most of our work with our head and upper limbs.

The lower limbs carry us where we wish to go.

HOW THE BEAVER BUILDS HIS HOUSE

If possible, show a picture of a beaver. See that the children have a reasonably clear idea of his size and shape.

I am going to tell you about an animal that can build a strong house, so strong that wolves and other wild animals can not tear it down.

Mary and John may each bring me their foot measures and place them end to end. That will show you how long the beaver is, besides his tail which is two inches shorter than a foot. How long is the tail?

Beavers are covered with two kinds of hair, one grayish, silky and short, the other much coarser and longer, reddish brown in color.

Beavers never travel or live upon land if they can help it. They like the water better.

Their hind feet are webbed to the nails (explain), and when they swim they use only the hind feet, guiding themselves by the tail.

The tail is broad, flat, and oval and covered with scales instead of fur.

They have very sharp, hard teeth which last them a life time.

When a beaver wishes to build his house, he chooses a place where the water is rather deep. If he does not think it deep enough he builds a dam to make the water deeper.

What does he get to build this dam?

He looks about and picks up stones and bits of floating wood, and gnaws off branches of willow and birch trees. He carries the wood in his teeth, the mud and stones in his fore feet.

Now you see why he does not use his fore feet in swimming.

If he did not make the dam strong, the water would soon wear it away, or break through it.

When the dam wears out he can mend it.

He uses the same kind of material for his house that he used for the dam. He builds it at night.

"Hail to December!
It gave to earth our Christ, the Lord."

When autumn comes, he covers his house with soft mud. This freezes when the cold days come. It becomes almost as hard as stone, and no wild animal can pull it down.

One house will usually hold four old beavers, or six or eight young ones. You may have been told that the beaver plasters the mud on the house with his tail.

People used to think he did, but now we are told that he uses his broad flat tail to guide him as he swims, not in plastering the house.

If you went to school to a beaver what could you learn from him?

(Bring out the idea of diligence as well as skill.)

MUSCLES

THIRD YEAR

LAST year you learned that your skeleton is covered with something besides skin. What is it? (Get the word, muscles.)

Find a large bunch of muscles in your upper arm. Of what use are they?

In what other parts of your body do you find strong muscles? What is their use?

Why are your muscles covered with skin?

What men have large, strong arm muscles?

What men have large, strong leg muscles?

What has made their muscles large and strong?

Place your hand on your chest and take a long breath. What do the chest muscles do?

Can you buy large, strong muscles? We will find out how we can get them.

When you go nutting, the longer you pick the more nuts you have. Can you get more muscles than you now have?

You can not get more muscles, but you can make those you have larger and stronger.

Suppose there were a number of children living in the same house and there was no one to care for and clothe them. If a basket of clothing were taken into the house, one child could come and take a coat, another a dress, another a hat, another shoes and so on until each had taken what he most needed.

After you have taken food into the stomach, the blood carries the food through the body and each part of the body takes the kind of food it needs.

The muscles get what they need, if we eat the right kind of food.

Can you tell me why the muscles do not get too large if they are taking in food every day?

When you use a knife in whittling, it wears away, bit by bit, until the blade is narrower than when it was new. You can not replace these bits; the blade remains narrow.

Your muscles are constantly wearing out, but

the food you have eaten takes the place of the worn-out matter.

Muscles need food.

There is something else that will make muscles larger and stronger. When you have been sitting too long, mother says, "Run out and take a little————?"

Muscles need exercise.

When you exercise so long that your muscles feel tired, what do they need?

Muscles need rest.

(Write the three statements about muscles on the board.)

Your muscles can not grow when they are tired. They need ten or more hours of rest every night.

Exercise is good for muscles, but not too much at one time.

Can you see your muscles grow? How do you know they have grown this year? They are larger than they were a year ago.

Ask several children to do something and tell what muscles they have used.

THINGS TO REMEMBER

We need strong muscles.

We can make our muscles strong.

Muscles need good food, exercise and rest.

We should not use our muscles too long at one time.

HOW MUSCLES MAY BE WEAKENED

Can you do harder work this year than you could last year? This shows that your muscles are stronger.

We have learned what the muscles need.

There are some things that will weaken the muscles.

Men often train dogs to perform tricks in a circus. Would a man keep a dog jumping over a bar very long at one time? Why not?

The man knows it would tire the dog's muscles too much. Would he give him poor food? Would he give him too much or too little?

Would he give him any drink containing alcohol? Alcohol would weaken the dog's muscles. The dog does not know this, but he knows that such drinks are not good for him and will not take them if offered him.

Beer and other drinks that have alcohol in them sometimes make people fat, but they never make any one strong.

Tea and coffee are not good muscle builders.

Tobacco weakens muscles and makes a boy lazy.

Men who hire errand boys do not want those with weak muscles.

Call the children's attention to well developed people and arouse the desire to make every part of their own bodies equally strong, healthy, and beautiful.

Point out the opportunities for physical culture for which no other apparatus is needed than the child's own games and plays and daily tasks.

Show pictures of famous statues, if attainable. (Allow the children to "play statue." At a given signal they take a pose, hold it a few seconds, walk a few steps, take a second pose, and so on.)

Draw from the children these

THINGS TO REMEMBER

Tea and coffee do not give children strong muscles.

Drinks that have alcohol in them weaken muscles.

Tobacco weakens muscles.

AUTHORITATIVE QUOTATIONS

ALCOHOL A HINDRANCE TO WORK

School children can not work properly if they have had alcohol, even in very small quantities. —G. SIMS WOODHEAD, M. D., F. R. S. E., Univ. of Cambridge.

Contrary to the popular opinion, heavy work is not made easier by alcohol. When alcohol is added to the fatigue products of the muscle, the depressing effect is very marked. The laborer who earns his livelihood by the exertion of his muscles destroys the source of his strength most effectually by the use of alcohol.—EMIL KRAEPELIN, M. D.

For all purposes of sustained, enduring, fruitful work, it is my experience that alcohol does not help but hinders it. I am bound to say that for all honest work alcohol never helps a human soul.—SIR ANDREW CLARK, M. D.

STRONG DRINK DOES NOT MAKE STRONG MEN

Strong drink does not make strong men. Eschew alcohol if you would enjoy perfect health. Even in moderation it is an evil. It is the fruitful cause of disease.—The *Medical Temperance Review.*

TOBACCO INJURIOUS TO THE MUSCLES

When athletes are trying to become as strong as possible, it is usual for them to do without alcohol and tobacco. This proves that the use of either alcohol or tobacco is considered injurious to the muscles,—ANDREW EADIE, M. D., Professor of Physiology, Ontario Med. Col. for Women.

School Physiology Journal

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THE CHRISTMAS ROAD

By a beautiful road our Christmas comes,
A road full twelve months long;
And every mile is as warm as a smile,
And every hour is a song.

Flower, and flake, and cloud and sun,
And the winds that riot and sigh,
Have their work to do ere the dreams come true,
And Christmas glows in the sky.—G. C. C.

WHERE ARE THE FUTURE MAJORITIES

BY REV. E. O. TAYLOR

Author and Lecturer on
Temperance Teachings in Science.

WHERE are the future majorities? The following facts will suggest the answer to this question:

1. It is a fact that the present trend of the temperance movement throughout the civilized world is reverting from premature, sporadic efforts back to careful, patient, educational methods.

2. That the efficiency and permanency of prohibitory legislation have ever been dependent upon the education of the voting majorities as to the nature and effects of alcoholic liquors.

3. That, therefore, the education of these voting majorities becomes at once a matter of momentous importance.

4. That in this country these majorities are in the public schoolrooms of today, where they can be reached and influenced adequately under our temperance education laws.

5. That according to the report for 1899 of Dr. W. T. Harris, National Commissioner of Education, the average time during which children in this country remain in the public schools does not take them quite through the fifth school year.

The answer, therefore, to the above question is plainly this:

The future majorities which are to be educated and thus charged with the responsibility of voting out the saloon and of inforcing prohibitory laws are to be found in the first five grades of the public schools of today.

The inexorable logic of these facts makes it clearly evident that the teaching of temperance physiology and hygiene should be as painstaking, thorough, and systematic as possible during the first five school years. To omit, or skim over this teaching during this time period is by no means a question of *method*, but one of yielding a strategic position—an irrational, egregious blunder.

Nothing less than graded, progressive, oral instruction with a text-book in the hand of the teacher during the first three years, and graded, progressive lessons with text-books in the hands of both teacher and pupils for the fourth and fifth years can be consistently tolerated in the light of these facts.

Unyielding insistence must be used in requiring a text-book, properly graded, in the hand of the teacher during the *oral period* to prevent waste of time, teaching errors, unnecsssary repetition, and to secure progressive results; and it is only in keeping with the proper rank of this study that a text-book should be given to the child at the same time that he is given text-books in other branches.

Increased emphasis is placed upon the infallibility of these views by two important considerations:

First, the ranking importance now being given to temperance physiology and hygiene by leading educators and physicians, as recently voiced by Sir Victor Horsley, of London. He says, "The English physicians ask that this study shall rank third in importance in the schools of the United Kingdom, language first, arithmetic second, hygiene and temperance third."

Second, the liquor advocates in every country where temperance instruction is mandatory have learned to regard the lower grades as strategic ground and are consequently active in moulding sentiment opposed to any *effective* teaching on this subject in those grades.

The logic of the situation, therefore, and the line of battle thus drawn today, should make it perfectly clear to every educator, legislator, and other intelligent, well-meaning citizen, that to oppose or to deal slightingly with the systematic teaching of this subject in the lower grades is not only constructively criminal, but is to place one's self on the enemy's side of the battle line in the crucial hour of this great conflict.

Grammar Lessons

FOURTH YEAR

THE CIRCULATION OF THE BLOOD

AN earnest, conscientious teacher once asked the editor of this JOURNAL what she could do to induce her boys to stop smoking cigarettes. "I have preached and preached," she said, "and it does no good."

"Do not preach any more, but teach," was the reply.

"But how shall I do it?"

"In the morning write this question on the blackboard, 'How can bread, potatoes, and meat become part of a boy?' Then, in your most interesting way, develop the subject of digestion, showing how the food is broken up and carried to all parts of the body.

"Go carefully over the processes by which the heart, arteries and veins act, and the work of the blood, but say nothing about cigarettes.

"Then write on the board the question, 'What does the pure air you breathe do in the body', and develop the subject of respiration, bringing out the process by which the blood is freed from impurities in the lungs and the need of pure air to make pure blood."

After a few weeks of such teaching, the pupils unanimously declared that they liked physiology, one declaring that it was more fun than a windmill."

The next work was to show the probable result of eating improper food or of breathing impure air, including that poisoned by tobacco smoke, and the injurious effects of nicotine on the different organs of the body, especially in the case of boys.

The result, as might be expected, was that the boys who had been unmoved by preaching voluntarily gave up the use of cigarettes on becoming convinced by physiological facts that by such use they were spoiling the wonderful mechanism of their bodies and impairing their future usefulness and money-earning power.

The lessons developed each month in the JOURNAL are designed to aid all teachers who have tried in vain the preaching method in temperance physiology, and who want to know how to teach the subject in such a way as to interest and convince their pupils.

DESCRIPTION OF THE BLOOD

Get fresh stems of milkweed, if possible, and other plants from which the sap will run when the stems are broken.

By questioning, bring out the fact that this sap is the life juice of the plant, that all plants have it, and that this is what makes the plants and trees live and grow larger.

Ask the children what happens when they cut or prick the hand or any part of the body? Does blood come out when hair and nails are cut? Why not? Where is the blood?

What color are the lips and cheeks? What makes them red?

Compare the color of the blood with that of the sap from different plants, *e. g.*, that of the maple tree, milkweed, bloodroot.

The blood in our bodies is a clear fluid like water, but in it are so many tiny red particles that it looks red. Illustrate by nearly filling a bottle with red sand and then pouring in water.

WORK OF THE BLOOD

When this lesson is given in country schools, ask the children what their fathers raise on their farms. Do they need all this produce for their own use? What do they do with what they do not need?

In city classes, get the children to tell where the food comes from that appears on their tables. Trace the sources back to the farm.

Can potatoes, meats and grains be raised in the city? How does such food reach the people who live there?

What do we eat?

What parts of our bodies need food?

How does the food we eat get from the stomach to every part of the body?

The blood is the food-carrier of the body, just as cars, and boats, and wagons are the food-carriers of a country.

The stomach needs a part of the food that goes to it, but it can not use it all. Every part of the body must have its share.

This is one reason why the blood is always in motion, to carry food to every part, the bones and muscles, and skin and brain, and all the organs of the body.

How do you feel after you have been running or playing hard?

We feel tired after exercise, because our work or play has worn out parts of the body faster than they could grow again.

What is done with things that are worn out?

We do not leave worn-out clothes lying around the house; neither would it be safe for worn-out particles of the body to remain in the flesh and blood house we live in.

How do we get rid of the waste from our bodies?

Every time we breathe we throw off some of it. How does this waste matter get to the lungs from our fingers and toes and every part of our bodies?

The same busy carrier that brings food to every part carries away waste. What is its name?

Tell again the two kinds of work that the blood does.

ORGANS OF CIRCULATION

Show a chart of the circulation system of the body at this point in the lesson. A blackboard drawing in colored chalk will answer if no chart is available.

Draw a circle on the board. Ask the children what a circle is. Let them look up the word in their dictionaries if necessary.

What do we mean by the circulation of the blood?

Where does the blood start on its way around the body?

What makes it move? Why does it never stop?

"The years may enter not her shrine;
Forever fair and young is she,
The mother of our Lord."

Have the children open their physiologies at this point and read aloud in turn the story of the circulation of the blood.

Then call on different ones to trace its course from the heart to all parts of the body, back to the heart; then from the heart to the lungs and back.

What is the name of the pipes that bring the blood back to the heart?

What is the name of the pipes that carry the blood from the heart to different parts of the body?

What is the difference in color between the arteries and veins? Let the class find from their books the reason for the darker color o the veins.

How does the food for all parts of the body get out of the veins? How does waste matter from all parts of the body get into the veins?

Have the simple description of this process that is given in books for this grade read aloud by one or more children. Amplify this description as may be necessary until all understand it, and know that the blood-vessels divide and subdivide until they are as small as the tiniest veins in a leaf.

The walls of these tiny blood-vessels are so thin that food particles can easily pass out through them and waste particles pass in.

Bring a basin of water into the class and a bulb syringe.

Put the syringe into the water. The water remains still as before. It does not move.

Now press the bulb. This makes the water flow through the rubber tube. Let some of the children try this experiment. Then tell them that the heart works in something the same way.

It is made of muscle, and can squeeze itself together to send the blood to all parts of the body, and then relax to let the blood flow back into itself.

Show a cloth or paper model of the heart. How large is it?

How does it look on the outside? on the inside?

Let the child who has seen a chicken's heart tell about it.

Let the class draw a heart, showing the four chambers, the thick walls, and the large arteries and veins that enter and leave it.

Are there any doors between the right side of the heart and the left? between the upper and lower rooms?

Show the class how to find from their books the reason for each of these openings.

NEEDS OF THE BLOOD

If the blood feeds all parts of the body, what kind of food should we give it to carry to every part?

Let the class name foods that they think will nourish the body. Write a list of the best and most easily obtainable foods on the board.

There are other foods that are not good for the blood. What are some of these foods? Show the class how to find from their books why very rich food, fried meats and vegetables, much candy, cake, pastry, pickles, spices, unripe or overripe fruit, etc. are bad for the blood.

There are other things that people sometimes eat or drink that are not food at all. Who can name some of these things?

No drink that has alcohol in it is a true food.

Tobacco is not a food.

Besides not being foods, drinks that contain alcohol, and tobacco may hurt the body in many ways. This is because there is a poison in each.

Show the children how to find from their books what this poison is in each case, and some of the ways in which alcohol and nicotine hurt the body.

How can you tell when every part of your body is getting the kind of food it needs, and enough of it?

When you are getting just enough of the right kind of food, and nothing happens to make you ill, you will grow taller and stronger, you will weigh more, you will feel well, you will have a fresh clear skin, you will sleep well at night, and be ready to get up early in the morning.

People who do not have the right kind of food, or who use drinks that contain alcohol, or those who use tobacco are very likely to show it in some way.

The blood does not have enough good food to carry to the skin, and the face and other parts of the body are often covered with pimples and blotches. The hands of the cigarette smoker are stained brown and yellow.

Such a person is not pleasant to look at, and he often does not feel well.

Get from the children in conclusion such statements as these for the blackboard:

We must use only good food to make good blood.

Poor blood will not feed the body.

Alcohol and tobacco are bad for the blood.

We need pure air at night as well as in the daytime to keep the blood pure.

AUTHORITATIVE QUOTATIONS

HOW TO KEEP WELL

No disease can exist where there is an abundance of pure blood. To get the necessary amount, eat nutritious food, to circulate it perfectly, take proper exercise; to purify it, get fresh air and sunshine.—*Dietetic and Hygienic Gazette*, Feb., 1905.

NO STRENGTH IN ALCOHOL

There is an old prejudice, firmly rooted and almost impossible to destroy, that alcohol has a strengthening action, and that in consequence it is necessary to give it to debilitated persons, to children as well as adults, because alcohol is "healthful." Not only is this not true, but this belief constitutes a gross error which has most disastrous consequences. Strength is not given except by nourishment. To whom will ever come the idea that feeble children should smoke tobacco? And yet, whoever gives them alcohol, under whatever form and in whatever dose, acts just as foolishly.—Dr. Wormer, in the *Temperance Record*, Apr., 1905.

ALCOHOL NOT A FOOD BUT A POISON

Alcohol can never be nourishing, but is invariably poisonous. A poison destroys the vital parts of the body, while a nourishing substance keeps them in strength and repairs waste. This poisonous substance [alcohol], besides its intoxicating effect, works the greatest harm in all the principal organs of the body, in the kidneys, the liver, the muscles of the heart, the veins, the brain, the nerves, etc., and thousands of persons fall victims to this poison every year.—Max Kassowitz, M. D., Univ. of Vienna.

ALCOHOL A DISEASE-PRODUCER

Alcohol is no true food, for it tends to curtail life and to produce a host of diseases. Diseases of the heart and lungs, caused by drinking beer and spirits, are extremely prevalent, and carry off great hosts of patients. If it were a food, it would certainly be a most poisonous food to produce such curtailment of the lives of its votaries, even when using it moderately.—Charles R. Drysdale, M. D., Metropolitan Hospital, London.

TOBACCO A MENACE TO THE HEART'S ACTION

Tobacco is a poison to the motor nerves; it actually diminishes the power of the respiratory muscles; it diminishes the force of the heart's action; besides, it renders the latter irritable, easily excited and unable to respond to sudden emergencies, thereby disturbing and interfering with the normal circulation of the blood, and thus cutting off the tissues from their normal supply of even the nicotinized product of the habitual smoker. It is a nerve poison, but its action upon the nerve tissue is exerted through the medium of the blood-vessels.—C. J. Aldrich, M. D., Cleveland College of Physicians and Surgeons.

A CHRISTMAS CAROL

BY PHILLIPS BROOKS

Everywhere, everywhere, Christmas to-night!
Christmas in lands of the fir-tree and pine,
Christmas in lands of the palm-tree and vine,
Christmas where snow-peaks stand solemn and white,
Christmas where corn-fields lie sunny and bright.
Everywhere, everywhere, Christmas to-night!

II

Christmas where children are hopeful and gay,
Christmas where old men are patient and gray,
Christmas where peace, like a dove in its flight,
Broods o'er brave men in the thick of the fight.
Everywhere, everywhere, Christmas to night!

III

For the Christ-child who comes is the Master of all,
No palace too great and no cottage too small,
The angels who welcome him sing from the height:
"In the City of David, a King in His might."
Everywhere, everywhere, Christmas to-night!

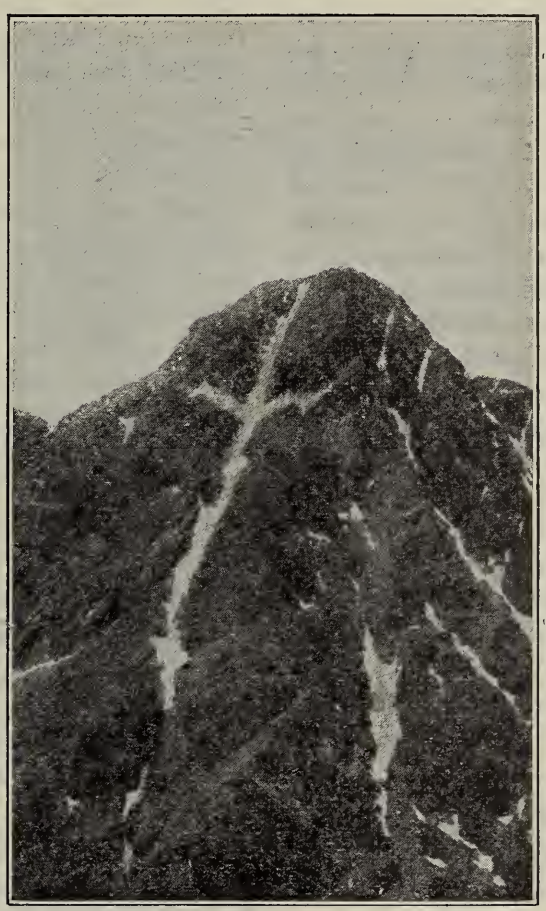
IV

Then let every heart keep its Christmas within,
Christ's pity for sorrow, Christ's hatred of sin,
Christ's care for the weakest, Christ's courage for right,
Christ's dread of the darkness, Christ's love of the light.
Everywhere, everywhere, Christmas to-night!

V

So the stars of the midnight which compass us round
Shall see a strange glory, and hear a sweet sound,
And cry: "Look! the earth is a flame with delight,
O, sons of the morning, rejoice at the sight."
Everywhere, everywhere, Christmas to-night!

While Thanksgiving has its foundation on Plymouth Rock, Christmas rests upon the Rock of Ages.—CHARLES DUDLEY WARNER.



"In the cross of Christ I glory
Towering o'er the wrecks of time"*

A LIQUOR-DEALER'S TESTIMONY

BY ROBERT H. MAGWOOD

AT a hearing before the Boston Police Board several years ago a liquor dealer sought to have his license transferred from the city to the suburbs.

His counsel said in substance, "The liquor dealer today finds himself the victim of many rules and conditions which go to rob him of his profit. The abutter first imposes an objection, then he may sell only certain hours, and on all legal holidays he is prohibited; he may not sell to certain persons or under certain conditions; and then, having complied with all the legal conditions, he finds, particularly among young Irishmen, large and growing total abstinence societies whose members positively shun his business, until he is compelled to seek new quarters or see his business gradually wiped out."

We are glad saloon representatives are ready to concede that a growing habit of abstinence from drink threatens the continuance of the saloon.

Millions of people not educated to our abstinence ideas seek our shores, continually helping to sustain an environment hostile to temperance sentiment.

Nevertheless, among our young people the idea is growing that total abstinence from alcoholic drinks is the only safe way.

The impartial student will at once concede that the training in our public schools is the great factor which produces the desired result, and that knowledge acquired in the study of physiology and hygiene means intelligent opposition to the use of either alcohol or narcotics.

A STAR

BY CLINTON SCOLLARD

Now that the year is rounding to its close,
And heaven sows with stars the fields of night,
Blossoms that burn with pale auroral rose,
With delicate emerald or with radiant white—

Down all the shadowy night-time of the past
One planet gleams resplendent over them,
Its glorious light o'er the whole world cast,
The star that's beacon'd above Bethlehem!

*Courtesy of the Missouri Pacific Railroad.

BOOK NOTICES

A Century of Drink Reform in the United States, by August F. Fehlandt. Jennings & Graham, Cincinnati. Price $1.50.

The purpose of this book is twofold, to present in outline a clear, concise history of man's struggle with his appetite for strong drink, and to indicate some of the most hopeful methods by which a successful outcome of his struggle is to be reached. The author, in our opinion, has come nearer attaining his first object than his second. The prevalent drinking customs of society a hundred years ago, the first strong notes of protest from individuals and societies, in the beginning for moderation and later for abstinence, the formation and growth of temperance organizations, the history of prohibition and the causes of its alleged failures, the connection of this movement with party politics, the concerted hostility of the liquor traffic, the local option principle, are all clearly sketched in popular language. The author, too, realizes that only votes cast for this specific issue in sufficient numbers will abolish the saloon; but he fails to point out with equal clearness the fact that these votes can be secured only when a majority of the voters want the saloon abolished, and that this must come about by teaching them when children in our public schools the real nature of the drinks sold by the saloon and the effect of these drinks on the physical, mental, and moral nature. A strong word as to the urgent need of thorough inforcement of the temperance education law now on the statute books of every state in the Union would have added immeasurably to the practicable value of the book.

Temperance Progress In The Century, by John G. Woolley, M. A., and William E. Johnson. The Linscott Publishing Co., London and Philadelphia. Price $2.00.

While many of the topics elaborated in this very interesting book are the same as in "A Century of Drink Reform" noted above, it covers a wider field, tracing as it does the progress of temperance in other countries as well as the United States. The Gothenburg and Dispensary systems are fully described, a chapter is devoted to temperance and medicine, and another to temperance and life insurance. The canteen question is elucidated and the relation of temperance to industry convincingly shown. A feature of the book is the revelations it makes of the methods by which liquor men influence legislation and hoodwink the temperance and religious elements of a community into siding with them whenever this question is brought to the polls. In this book, too, the importance of educating the children and young people in the physiological reasons for total abstinence is not emphasized so strongly as could be wished. In the opinion of the authors, the church is the hope of the temperance reform of the future, but it will be a forlorn hope unless Christian people as well as others are taught before appetite is formed that alcohol is always a narcotic poison with the power to create a craving for itself that can not be resisted.

The Industrial History of the United States, by Katharine Coman, Ph. B. The Macmillan Co., New York and London. Price $1.25.

It is a relief to turn over the pages of a school history that does not give first place to battles and bloodshed. The record of our industrial progress is far more important to the youthful student, and in this book it is given with simplicity and yet with full reference to authorities. The arrangement is such that it is equally well adapted to the needs of classes that can devote but a limited time to the subject, and to those able to study each topic in detail. The illustrative readings are selected for the interest which they will arouse in the work no less than for their scientific value, a feature which should commend itself to other authors. The marginal references are valuable and the illustrations good. The type is the poorest feature of the book, and minimizes to a degree its otherwise attractive appearance.

World Organization, by Raymond L. Bridgman. Ginn & Co., Boston. Price 50 cents.

In part, a reprint of articles which have appeared recently in some of the leading magazines, showing that the essential unity of mankind points to a similar unity of organization, and indicating the salient features of such organization. The chief objections are answered, and the advantages which would ensue to strong as well as weak powers are shown, together with the improved condition of society. The author outlines the steps already taken to bring about this eminently desirable state of affairs, noting especially the work of the Hague conferences.

PHYSIOLOGY TOPICS FOR DECEMBER

Primary—Cider, Wine, Beer; Effects of Each. Cigarettes. Sense of Sight; Use of Eyes, Care, Training. Growth; Need of Exercise and Sleep.

Intermediate—Circulation of Blood; Heart, Veins, Arteries, Capillaries, Pulse. Skin; Layers, Functions, Care.

Advanced—Excretion; Necessity for, Excretory Organs. Need of Outdoor Life. Special Senses; Experiments.

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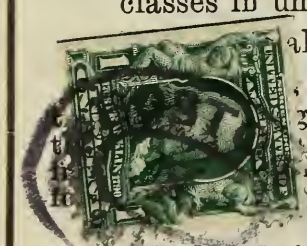

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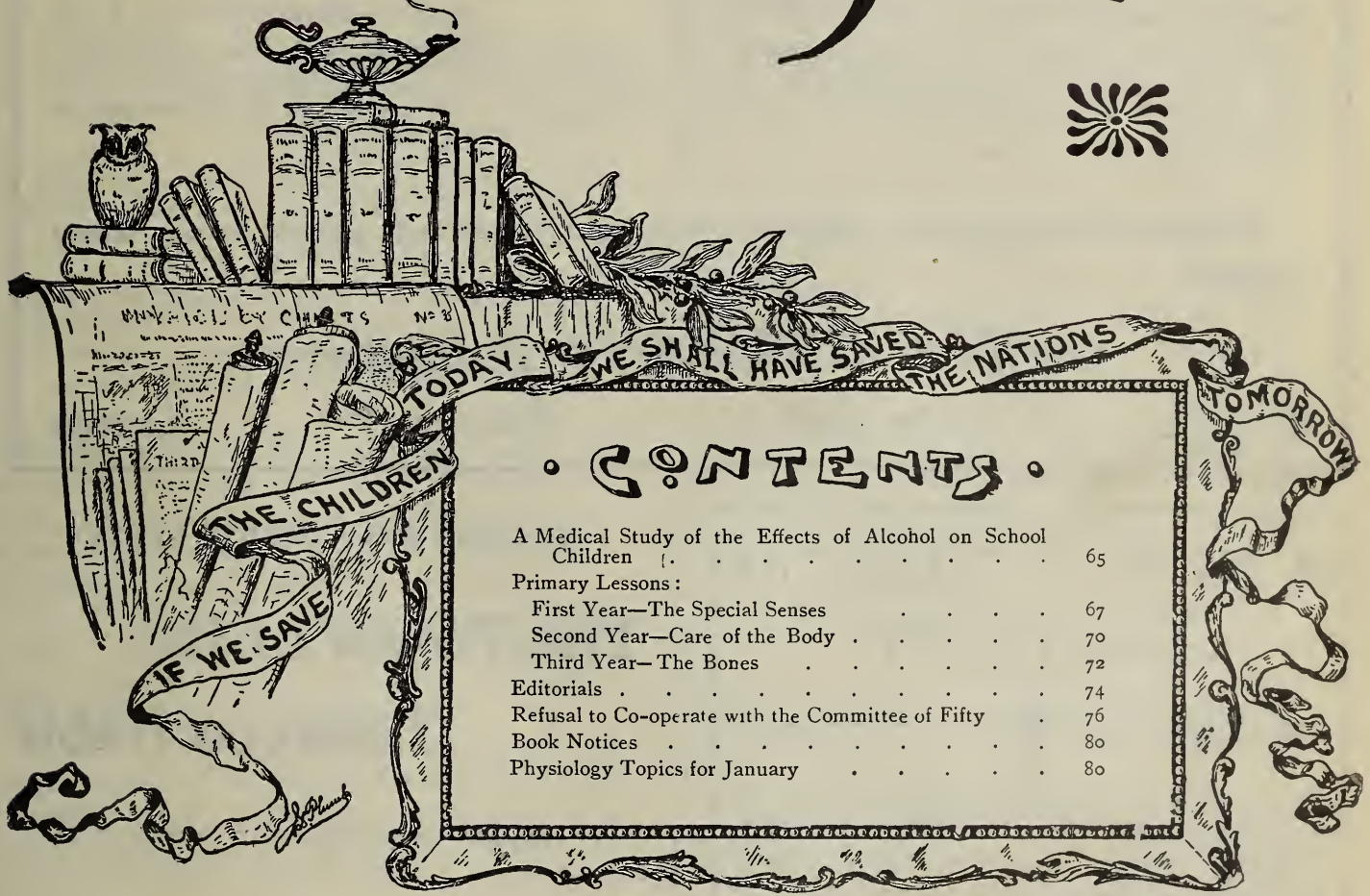

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VOL. XV. NO. 5
JANUARY, 1906

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School Physiology Journal

Vol. XV *BOSTON, JANUARY, 1906* *No. 5*

JANUARY

BY JESSIE DAVIS

I'M little January;
Perhaps you do not know
How far I've come to greet you,
Across the fields of snow.

Perhaps you weren't expecting
I'd be so very small;
Perhaps you're almost wishing
I hadn't come at all.

I've several little brothers,
And little sisters, too;
And every one is coming
To make a call on you.

But I got ready quickly,
And came right straight off here,
To be the first to greet you,
This happy, glad new year!

A MEDICAL STUDY OF THE EFFECTS OF ALCOHOL ON SCHOOL CHILDREN

BY T. A. MACNICHOLL, M. D.

Vice-President of the American Medical Association for the Study of Alcohol and Inebriety, New York City, N. Y.

IN a study of the relation of heredity to the mental deficiency of children, undertaken in 1901 for the New York Academy of Medicine, I was forcibly impressed with the conspicuous position occupied by alcohol. A more extensive study verifies the facts then presented and gives added emphasis to alcohol as an etiological factor in mental deficiency.

This subsequent investigation included 55,000 school children—10,790 females, 44,210 males; 17,422 of foreign parentage, 37,578 of American parentage.

These children represented 143 schools and 1,572 classes in New York, New Jersey, New Hampshire and Connecticut; 10,800 from country schools, 44,200 from city schools. Of this latter number, 13,000 are from cities of less than 50,000 population.

The conservatism of many school officials, together with the numerous duties of school teachers made it impossible to secure an exhaustive, consecutive, and comparative study of city and country schools; however, the facts secured are sufficient, and the field covered comprehensive enough to reveal the relative importance of the underlying causes of mental torpor.

The 55,000 children, classified according to their standing in studies, appear as follows: standard, 42 per cent; below standard, 16 per cent; dullards, 17 per cent; very deficient, 25 per cent. Direct causes of dullness reported: personal habits, 9 per cent; environment, 11 per cent; heredity, 65 per cent; sickness, less than 1-300 of 1 per cent.

Comparing city and country schools we find a preponderance of deficients in the city. Country schools: dullards, 15 per cent; very deficient, 7 per cent; a total of deficients in country schools of 22 per cent. City schools: dullards, 17 per cent plus; very deficient, 29 per cent plus; a total of deficients in city schools of 46 per cent.

The causes contributing to dullness in country towns are less conspicuous and glaring than those which obtain in more crowded and metropolitan centers. Those that do exist find partial compensation in more congenial environment and healthful activities.

The city, with its multitudinous avenues for advancement, affords unbounded opportunities for the concentration and operation of those retrograde forces which reduce the vitality and capability of children.

In city schools, the children of foreigners make a large percentage of the deficients, but their dullness is directly traceable to causes other than racial. All things being equal, the children of the native present no superiority over those of the foreigner. As an instance, a class of 50, in which 90 per cent of the children had an American ancestry of five generations, but with hereditary alcoholic taint, reported 80 per cent dullards.

The personal attitude to alcoholic drinks, including beer, wine and spirits, is reported in 34,000 cases, viz.: abstainers, 73 per cent; drinkers of beer, 23 per cent; drinkers of spirits, including wines, 4 per cent; drinkers of beer and spirits, 12 per cent.

The parental attitude to alcoholic drinks is reported in 20,147 cases: children of drinking parents, 6,624; children of abstaining parents, 13,523. Children of drinking parents, 6,624; dullards, 53 per cent; children of abstaining parents reported dullards, 10 per cent.

The close correspondence between the drinking habits of the parent and the mental deficiency of the child can not be mere accident.

Heredity is a very important etiological factor in mental deficiency and can not be ignored in its bearing upon treatment.

In dealing with mental deficients, we are prone to mistake some symptom for the cause

and in our efforts to remove the manifestations of disease we conceal the main disorder.

It is well for us to recognize that organic disease, tendency to eye strain, deafness, various neurotic manifestations, and dullness, each may be the sequel of an alcoholic history. These results should not be mistaken for the primary cause of the disturbance.

One causative factor of dullness which should command close attention is the prevailing drinking habit among children. A few special instances may be noted: four classes, having a total of 184 pupils ranging from eight to eleven years of age, were reported as "unusually dull," but 16 reaching the standard in study. Investigation revealed the following facts: one hundred drinkers of beer, 9 drinkers of spirits, 51 drinkers of beer and spirits—a total of 160 drinkers (about 87 per cent), 57 of whom drank "liquors" regularly with their meals.

In a class of 60 boys, of whom 40 are drinkers of beer and spirlts, it is no uncommon experience to have one or more stagger into the schoolroom, drunk.

These juvenile drinking habits are not wholly confined to metropolitan schools. In a town of 6,000 inhabitants, 10 children under 12 years of age were found on two occasions in a helpless state of intoxication.

In a village school of 186 pupils, 30 are occasional drinkers of beer and spirits. When searching for two absentees, boys under 12 years of age, the truant officer found them lying drunk under a shed.

A boy of eight years came into the classroom in great distress. On inquiry the teacher found he had taken a quantity of pure alcohol to quench a thirst that beer would not satisfy.

The dangers and temptations from drink are not confined to the child's home.

One teacher reports that a boy of nine came into school drunk. He was induced to confess where he had secured his drink. Taking a card from his pocket, he said, "This is my beer card," and explained that a hole was punched in the card every time he got a drink of beer, and that whoever got the most holes in his card in a month got a prize. A large number of the 55 boys in the class acknowledged that they had cards like it, and often bought beer so as to get holes in their cards.

Numerous instances are reported of children acquiring the appetite for strong drink through patronizing the free lunch in a bar room.

In a number of saloons, rooms are fitted up with small furniture, picture-books, toys, and hobby-horses, and into which children are enticed to play. The taste for liquor is surreptitiously cultivated, until the habit is securely fastened. Two boys, sons of a highly respected and honored citizen, were thus inveigled into drink and in a brief period sank into the depths of the wildest debauchery.

The immediate causes of dullness dependent upon a vicious environment, habit, etc., are not so easily overlooked as those more subtle, yet none the less potent causes which, through heredity, have become implanted in the fundamental structures. Family history is of inestimable value to a clear recognition of the primary causes of dullness.

The following is a summary of the family histories of 3,711 children of 1,100 different families traced through three generations: 1,871 males, 1,840 females; 19 precocious in one or more studies, 421 excellent, 981 fair, 2,290 dullards. The personal attitude to drink: 66 per cent abstainers, 28 per cent beer drinkers. 6 per cent whiskey drinkers, 14 per cent beer and spirit drinkers. Family history in relation to drink: 2,713 had drinking parents, 2,771 had drinking parents and grandparents, 998 had abstaining parents, 757 had abstaining parents and grandparents.

Of the children of drinking parents but abstaining grandparents, 73 per cent were dullards. Of the children of abstaining parents but drinking grandparents, 78 per cent were dullards. Of the children of abstaining parents and abstaining grandparents,4 per cent were dullards.

Dividing the 3,711 children into two classes, viz., those free from hereditary alcoholic taint and those with hereditary alcoholic taint, we note some very striking contrasts:

1. Those free from hereditary alcoholic taint: 96 per cent were proficient, 4 per cent were dullards, 18 per cent suffered from some neurosis or organic disease.

2. Those with hereditary alcoholic taint: 23 per cent were proficient, 77 per cent were dullards, 30 per cent very deficient, 76 per cent suffered from some neurosis or organic disease.

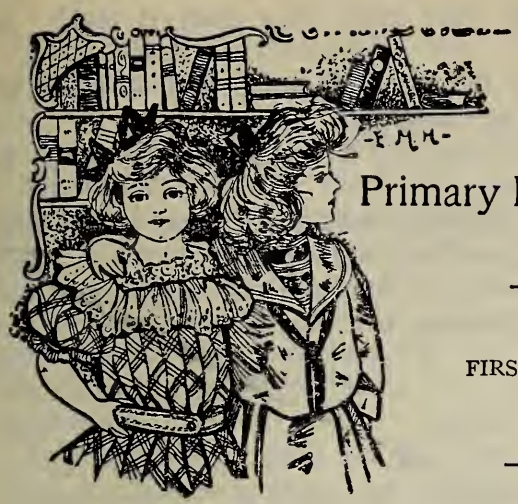
From these studies we conclude:

1. Alcohol at the threshold of life is a bar to success and a foe to health.

2. Alcohol, by destroying the integrity of nerve structures, lowering the standard of organic relations, launches hereditary influences which by continuous transmission gain momentum and potency and leave their impact upon gland and nerve until mental faculties are demoralized, physical energies hopelessly impaired, and moral nature becomes degenerate and dies.

3. If we are to make any material change in the ranks of mental deficients we must adopt methods of prevention as well as methods of cure.

It is a momentous problem that confronts us. The spirit in which we meet it may be a possible aid or hindrance to its solution.—*New England Medical Monthly.*



Primary Lessons

FIRST YEAR

THE SPECIAL SENSES

DURING the year 1905, a careful physical examination of almost 14,000 children has been made in the city of New York. The results showed that of these 14,000 children 3,219 had defective vision, and 460 defective hearing.

In almost every instance the truth was not suspected and nothing had been done for the children. They had been considered as stupid or mentally defective.

Every teacher ought to be on the lookout for cases of this sort. A few simple tests will usually bring out the facts. If there is any sign of weakness the child's parents should be notified and a physician consulted.

NUMBER AND NAMES OF THE SENSES

What color is this flower?

How do you know that the rose is red?

How do you know that the bird sings sweetly?

How do you know that the violet has a pleasant odor?

How do you know that the pickle is sour?

How do you know that the stove is hot?

We call these means of finding out things, the senses.

How many senses are there?

Is there any other way that we find out about things?

Name all the five senses.

SIGHT

With what do we see?

Name as many different parts of the eye as you can.

Outside, there are lids and lashes.

Under the lid is the eye-ball.

Notice the little dark spot in the middle of the eye.

This is the pupil through which we see.

THE EYE

What is the use of the eyelid?

How do you shut your eyes?

When the lid is down over the eye, can you see?

Why are the lids down when we sleep?

What is the use of the eyelashes?

What prevents drops of perspiration from running off the forehead into the eye?

The eye must be kept moist all the time.

When we cry there is more water in the eyes than we can take care of. What becomes of it then?

We call this water, tears.

How many of you have had your pictures taken?

What is the name of the box which the photographer uses to take the picture?

Each of our eyes is a little picture-making machine like the camera of the photographer.

The picture goes into our eyes through the little dark pupil.

(Let each child look for the pupil in his neighbor's eye.)

We call this seeing.

CARE OF THE EYES

Our eyes are so very delicate and wonderful, we must take good care of them. If once they are injured, we can not get new ones.

When you read, or use your eyes for work, you need good light.

When must you never try to read?

In the twilight.

It will hurt your eyes, if you read with the bright sunlight falling on the book.

What position should you take to read?

You should never read while lying down.

When the eyes are tired, what ought you not to do? You ought not to use them then, because they need rest.

You ought not to rub your eyes. If they feel badly you may bathe them in warm salt water or milk and water.

If you have any trouble in seeing, you ought to go at once to a doctor.

SENTENCES

We have five senses.

They are sight, hearing, touch, taste, smell.

We see with our eyes.

We must take good care of our eyes.

HEARING

When some one calls you, how do you know it?

What do you hear with?

Where are your ears?

SHAPE AND PARTS OF THE EAR

What is the shape of the outside part of the ear?

It is something the shape of a shell.

What other part is there to the ear besides the broad curved part on the outside? The tube which goes into the head.

Why is the outer part of the ear so broad?

To gather up the sounds and send them through the little tubes.

Our ears are almost as delicate and wonderful as our eyes.

If we injure them, we become deaf. Then we can not hear any of the sweet sounds in the world.

We must be careful never to put anything into our ears.

CARE OF THE EARS

The outside should be washed with a soft cloth and warm water.

In very cold weather the ears should be covered when you go outdoors.

You must be very careful never to pull the ears, or strike any one on the ears, because it might make him deaf.

SENTENCES

We hear with our ears.
It is pleasant to hear music.
We should never put anything in the ear.
Be careful not to strike the ear.

TOUCH

When you are near a stove how do you know whether or not there is a fire in it? Where do you feel the heat?

All over the body, just under the skin, are little nerves with which we feel.

The nerves find out about things outside our bodies and carry the message to the brain. This is feeling.

What can we feel besides heat? Cold.

WHAT WE LEARN THROUGH TOUCH

Press your finger on your desk. How does the desk feel? Tell of something else that is hard.

How do mud and dough feel? Name something else that is soft.

Rub your hand along the top of your desk. Is it smooth?

Name something else that is smooth. Something that is not smooth.

What do we call things that are not smooth?

Touch different parts of your hand with your pencil. With what part do you feel best?

There are more nerves in the tips of the fingers than anywhere else on the hand.

The lips and tongue have many nerves. They can feel well and quickly.

When we touch something too hot, or hit something very hard, how does it feel? It hurts.

That is the way our nerves tell us when we are injuring ourselves.

What do we call it when our nerves tell us this? Pain.

Pain is a good friend, for it says, "Look out. There is trouble at this spot."

If it were not for pain, we might get hurt without knowing it.

SENTENCES

Fire feels hot.
Snow feels cold.
Iron is hard to the touch.
Window-glass is smooth.

TASTE

If I should give you a piece of sugar, what would you do with it? Why?

What is it that we taste with?

How does sugar taste? Can you name anything else which tastes sweet?

How does vinegar taste? What else tastes sour?

How does medicine sometimes taste? Can you think of anything else which is bitter?

How does dried fish or dried beef taste? Do you know of anything else that tastes salt?

In order to taste a thing it must melt or dissolve in the mouth. Then the tiny nerves of the tongue tell us about it, and we know we have in the mouth something which is sweet or sour, salt or bitter.

If it were not for the sense of taste we should not enjoy eating.

But just because a certain kind of food tastes good, you should not eat too much of it. Too much sweet, as for instance, candy, is not good for you.

Even if you do not care very much about the taste of some food, if it is good, you should try to eat a little of it. It may be that you can learn to like it.

SMELL

If your eyes were shut tight, and I should bring a bunch of violets near you, would you know they were there? How?

Where is your sense of smell?

Can you name some pleasant odors? Some unpleasant ones?

The sense of smell is very useful to us, because it warns us of bad things, often more quickly than our eyes or ears can.

Whenever you are in a place which smells bad, the best thing to do is to go away.

Food that smells bad is not good to eat.

Do you know of any animal whose sense of smell is stronger than ours?

I will tell you the story of a dog who could smell much better than we can.

CLARENCE AND BOB

Once on a time there was a little boy named Clarence, who had a big Newfoundland dog. Wherever Clarence went, Bob (for that was the dog's name) went too.

Clarence's mother would say as they started out to play, "Now Bob, look out for Clarence. See that he doesn't get hurt, and bring him back safely."

Bob would look up in her face and wag his tail. He knew what she was saying, and tried his best to answer her.

How well he minded! One day Clarence was playing on the bank of the river. Suddenly he slipped and fell in.

He would have drowned, but Bob, who had heard his scream, came rushing down the bank, jumped into the water, and caught Clarence's coat in his mouth.

He swam back to shore, and somehow managed to drag the little fellow out and lay him on the grass.

Then he ran home, rushed up to Clarence's mother, and began pulling her skirt and barking.

She followed him, wondering what was the matter, and Bob led her to where Clarence lay on the grass. If it had not been for Bob's bravery, Clarence would have lost his life.

"There was the little boy fast asleep."

One day Bob went to town with Clarence's father, and Clarence was left to play alone.

He played near the house for awhile, but about four o'clock his mother missed him.

She called, but no answer. She looked everywhere—no Clarence could she find.

Of course, she was very much frightened. She called all the neighbors and they searched through the woods and along the river, but there was not the least trace of the missing boy. The poor mother was almost frantic by the time Clarence's father came home.

She told him how they had searched everywhere,—the fields, the woods, the river, and they were sure that some dreadful thing had happened to the little boy.

The father looked very anxious for a moment, then he whistled for Bob.

When the dog came running up he said to him, "Bob, find Clarence."

Bob wagged his tail and put his nose to the ground. He ran about snuffing for a few moments. Then he went into the house and straight to the parlor.

There, all curled up in father's big chair, they found the little boy asleep.

Bob uttered a short, joyful bark, as if to say, "Here he is."

You may be sure that Clarence's mother and father were happy. How they laughed and cried together over Clarence and the dog!

You see the dog has such a keen sense of smell that Bob was able to scent Clarence, as he lay asleep. Dogs often follow a scent for miles.

SENTENCES

We taste with the tongue.

We can taste sweet, sour, salt and bitter.

We smell with the nose.

A dog's sense of smell is keen.

EFFECT OF ALCOHOL AND TOBACCO ON THE SENSES

All we know about the world comes to us through our senses. If we injure or lose any of these senses, we can not enjoy so much of the beautiful world.

If our sight were dimmed or our ear dulled, we should lose a great deal that might have made us happy.

Shut your eyes a moment.

What do you see? Nothing.

Think of being blind always. Is there anything in the whole world you would take in place of your eyes?

Would you rather not have your hearing than all the money in the world?

We must take care to keep our senses in good working order. A little carelessness or an accident may do them great harm.

There is one way that people often injure their senses. They may not know that they are harming them until it is too late.

If you learn about it now you need never hurt your sight, or hearing, taste, smell, or touch

in this way. It is by the use of alcohol and tobacco.

Alcohol, we have learned, is a poison found in cider, beer, and wine. It is also found in some other drinks.

When you drink any of these liquors, you take some of this poison into your stomachs. From there it may find its way to all parts of your bodies.

Sometimes, when a person drinks these liquors, they hurt his eyes. They make them red and sore.

Sometimes smoking tobacco hurts the eyes, too.

We learned how careful we must be not to hurt our sense of hearing by putting things in the ear, or by striking the side of the head. Alcohol, taken in these drinks we have spoken of, sometimes dulls the hearing.

If a man is in the habit of using drinks which contain alcohol, or of smoking, his senses of taste and smell may be dulled and hurt, and the nerves in his skin may not be able to feel so well or so quickly as they ought

So you see, every one of the five senses may be harmed by using alcohol, and several of them by tobacco.

There is just one way to be sure that our senses will never be hurt by these things, and that is, by letting both alcohol and tobacco alone.

If we never taste cider, beer, or wine, we shall never learn to like it, and drink too much.

If we never smoke one cigarette, we shall never injure sight, taste, or smell by smoking too many.

The real danger lies in beginning to use such things. Let them alone and you will be safe.

AUTHORITATIVE QUOTATIONS

EFFECTS OF ALCOHOL ON THE SENSES

The perceptive faculties are, to an extent, benumbed, even by quantities of alcohol that most moderate drinkers would think nothing about.—A. A. Hill, L. R. C. P.

Tendency to eye strain may be the sequel of an alcoholic history.—T. A. Macnicholl, M. D., New York.

It has been found out that a person can not see or hear so clearly, or act so precisely after he has taken a little alcohol as he could before. —W. S. Hall, M. D., Ph. D., Northwestern University.

One of the many effects of nicotine is that of injuring the eyesight through its action on the nerves.—C. H. Shepard, M. D., Brooklyn.

CARE OF THE BODY

SECOND YEAR

A MACHINE or tool will not do its work well unless properly cared for. It is far more necessary that we care for our personal tools, upon which our success in life largely depends.

Whenever occasion arises, call attention to the things that make for bodily health and strength, following the affirmative method and telling the children what to do, rather than dwelling, unnecessarily, upon what they are *not* to do. Emphasize the fact that they are builders and the gain to them if they build well.

CARE OF TOOLS

If you had a machine given you that helped you in many ways and could never get another, what kind of care would you give it? Would you put anything on it or into it that would make it less useful?

Ask the children to name a number of tools and tell what must be done in order to keep them in good condition, *e.g.*, ("A saw is a tool, and we need to keep it sharpened.")

What have you ever made or built? Different boys and girls have made different things; but there is one thing all boys and girls are building every day, and it grows larger and larger. What is it?

CARE OF PARTS OF THE BODY

What kind of a body do you need in order to have a good time? In order to work well?

Would a horse have a strong body if no one took care of him? Do you need as strong a body as the horse needs? Why not? Do you need as strong a brain? Why?

How can we help our bodies to grow more and more useful?

You have told me you are building your own bodies day by day. How can you build glossy hair? Clear and strong eyes? A soft, smooth skin?

Finger nails you would be willing to have seen? Teeth that will last a lifetime? A broad, strong chest?

A straight back? Strong legs and arms?

How many of you own a tooth brush? How many of you use it every day?

Do not ask the last two questions if you think pride would tempt any child to tell an untruth in order to gain your approbation. A little quiet missionary work may be done along this line, suggesting ways in which money may be earned to buy a tooth brush. In some cases, it will be better for the teacher to make the purchase for the child.

Tomorrow I shall ask you to place your hands

on your desk so that I can see your finger nails as I pass.*

Would a horse travel well if his shoes were too small? Can your feet grow if your shoes are too small?

Is it healthful to wear rubbers in the house? How do they make your feet feel?

When you have wet your feet what should you do? When you change your shoes and stockings after wetting your feet, be sure to rub your feet till they are warm and dry.

In very cold weather, button your coat.

We will play a child has just arisen in the morning. What shall he do before breakfast in caring for himself? What shall he do before dinner?

If a little girl has been playing in the yard, and her mother asks her to come in and help her what should she do to her hands?

What should she do before supper?

Should we go to bed with soiled hands or feet? What should we do to our teeth?

There are many things we can do for ourselves without troubling mother to do them for us.

Two illustrations of a well-built body.

THINGS TO REMEMBER

I shall be well and strong if I take good care of my body.

I must keep it clean.

I must keep my feet dry.

I must keep my nails clean.

SOME NEEDS OF THE BODY

While the conditions of life vary greatly among the children of all nations, the problem to be solved remains the same,—the making of a more vigorous and healthful body.

No child, rich or poor, but must have fresh air, wholesome food, and exercise in order to attain this end.

It is said more babies die from overfeeding than underfeeding, a truth not always limited to babydom.

In communities where mothers' meetings are held, much may be done in the right direction. Where the mothers can not be easily reached, we must depend upon the children to make needed reforms in the home, and who shall inspire the children if not the teacher?

*Do not forget to do this.

Material. Shell of turtle and snail (or picture). Oyster and clam shells.

CLEANLINESS

When you go home from school, how do you like to see the rooms look? Why would you not like to see them disorderly and dirty?

What land animals carry their houses about with them? What sea animals live in one house all the time? (Show the shells if possible. Call attention to the cleanliness of these houses.)

Please show me the house you carry round with you.

FOOD AND DRINK

How can you clean the outside of these houses when they are soiled? What else does the body need? (Question until you get good food and drink.) Please name a few foods that are healthful.

HEALTHFUL AND UNHEALTHFUL DRINKS

What drinks are healthful? What is the best drink to quench thirst? Beer and wine and some other drinks contain something harmful. It is called alcohol.

These drinks do not quench thirst, nor make the body strong. Tea and coffee will not help you to grow. Grown people have harder work to do than children, and may sometimes need tea and coffee. Children never do.

TOBACCO HARMFUL

Will smoking help boys to grow? Some years ago when the men of this country went to war, many of them were wounded. Doctors found out that men who did not drink beer and other harmful drinks got well sooner than those who used them. Doctors have told us that boys who smoke are not so strong as those who do not.

EXERCISE AND REST

Besides food and drink we need exercise to help us grow larger, taller, and stronger. Please

think of things you can do that are good exercise. (Caution against excessive exercise.) After we have exercised we need——? (Rest)

We need something besides water, food, drink, exercise and rest. We need air.

NEED OF PURE AIR

I can see several openings in your body houses that let in fresh air. What are they?

Please stand. Breathe in while I count one. Breathe out when I count two. (Count slowly 1-2, 1-2, several times.)

Show the difference between deep and shallow breathing. Rest. Try again, this time raising your arms level with your shoulders while I count 1-2, 1-2.

(Show that in all feats the man who can breathe deeply will be able to do more than one who can not.)

Are your clothes so loose that you have plenty of room to breathe? If they are not, ask your mother to make them larger.

THINGS TO REMEMBER

We need to keep our bodies clean.

We need good food and drink.

We should not put harmful food or drink into our bodies.

We need exercise and rest.

We need to breathe deeply.

AUTHORITATIVE QUOTATIONS

ALCOHOL A POISON TO THE HUMAN BODY

Alcohol in any form, as brandy, wine, or beer, and even in relatively very small amounts, is a poison for the human body.—PROFESSOR FRAENKEL, Halle.

ALCOHOL BLUNTS THE PHYSICAL POWERS

No one can take alcohol without blunting the physical powers of the brain, the muscles, and the nerves.—ADOLF LORENZ, M. D., Vienna.

BEER LIMITS CAPACITY

Beer limits the capacity, and lowers body, mind, and soul.—COUNT VON HAESELER, Ex-Commander Sixteenth Army Corps, Germany.

ALCOHOL POSITIVELY INJURIOUS

Alcohol can not be advantageous, can not even be harmless, but is proved to be positively injurious.—*British Medical Temperance Review.*

ALCOHOL A FOE TO HEALTH

Alcohol at the threshold of life is a bar to success and a foe to health.—T. A. MACNICHOLL, M. D., New York.

THE BONES

THIRD YEAR

For the first lesson on bones, it will suffice to call attention to their place and use in the body, and to the more obvious ways in which children can aid the growth and development of a strong body framework.

DIFFERENT KINDS OF FRAMEWORK

How many boys in the room have ever made a kite? What part did you make first?

What part of a boat is built first? Of a house?

What part of a picture keeps the glass in place?

Suppose the boat builder does not make the frame of his boat strong, what happens? Please tell me what kind of a frame a boat needs?

Is your body built upon a frame? Who can tell what it is called? (Write on the board the name, skeleton.)

The carpenter builds a house for us. Who builds our bodies for us? (Bring out the idea that each child is the builder of his own body.)

CARE OF BODY FRAMEWORK

When people have lived in a house many years and it is old and ready to tumble down, they can have a new one built. Can we get a new body?

We can repair the one we have, but we can not get a new one.

If you could have only one suit of clothing in a year, how would you care for that suit?

We can learn to care for our bodies so that they will be useful to us as long as we live.

USES OF THE SKELETON

Please touch the part of your body where the skeleton is largest. Why does this part need to be so large?

What parts of your body does it support? What parts does it contain?

Please place your hands as I place mine. What do you feel? (The ribs.)

What do we call the bony ridge in the middle of our backs?

Of what use are the ribs and spine to your heart, lungs, and stomach?

What part of your skeleton helps you to stand and move about?

What part helps you to row or play ball?

What part of your skeleton holds the brain?

Has a jelly fish a bony framework? Why not? What can you do that you could not do if you had no bony framework?

John may stand and move his head in as many ways as he can.

Ellen, her hands.
Grace, her fingers.
Harry, his legs.
George, his feet.
William, his trunk.
Why can we bend our bodies in so many ways?

HELPS TO GROWTH

Are your bones alive?

They do not seem to be alive but they are. The blood carries food to them to keep them alive and make them grow.

What will help the framework of our bodies to grow strong and large?

Please name some of the best kinds of food and drink.

Name some we should not use.

HINDRANCES TO GROWTH

We have learned that children should not use tea and coffee.

Many grown up people drink too much tea and coffee and also drink it too strong.

Any drinks containing alcohol are likely to dwarf a child's body and keep it small.

Cigarettes may hinder a child's growth.

CORRECT POSITION

If we wish to have a straight body, we must not stoop when we sit or walk. We must stand evenly upon our feet. We must not sit on one foot.

(Show the children how to raise the chest. Formerly the command was "throw your shoulders back." The person could do so and still maintain a stooping position. If one is taught to lift the chest, the shoulders assume the correct position. As often as convenient, give the direction "lift the chest.")

Call attention to buildings and bridges and the care taken to make the framework of each very strong. We should take the same care of our body framework.

THINGS TO REMEMBER

We have a skeleton to give us shape.
It helps us when we work and play.
Our bones are alive.
They need good food and pure water.

"Ring out the old, ring in the new,
Ring, happy bells, across the snow."

Drinks that contain alcohol do not feed the bones.

Cigarettes hinder growth.

AUTHORITATIVE QUOTATIONS

TEA DRINKING BY CHILDREN

As a drink for infants and young children tea can not be too strongly condemned. First, because in children under two years of age it is very frequently given as a substitute for milk which should be the basis of their diet. Second, because when allowed to older children the taste for tea rapidly becomes a craving, and it is invariably taken in excess, in which case the effect upon the health is disastrous. — MATTHIAS NICOLL, JR., M. D.

ALCOHOL ARRESTS GROWTH

Alcohol arrests the growth. Children of alcoholic parents, trained to the early use of liquor, are stunted in their growth.—*Bulletin de L'Academie de Med.*

ALCOHOL A POISON TO THE HEALTHY BODY

Alcohol hinders the physical and mental development of children. Alcohol is poison to the healthy body. Physicians of all lands who understand the facts today declare unanimously that children should receive no alcoholic drinks. — *Allg. Schweitzer Ztg.*

TOBACCO CONTAINS A POISON

The smoker can not escape the poison of tobacco.—MARSHALL HALL, M. D.

TOBACCO UNDERMINES THE HEALTH

The use of tobacco gradually undermines the health of the strongest man. For years he may not realize it, but let an attack of severe illness overtake him, and he is unable to withstand the ravages of the disease, because his system is saturated with a narcotic poison, and he succumbs to an attack from which one who is not a tobacco user might readily recover. —W. H. RILEY, M. D.

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"E'en though we found the Old Year's way
Grow hard and harder day by day
With joy we greet the New Year's sway.

"O New Year keep thy promise rare!
Whatever grief our hearts must bear,
Be thou at parting glad and fair."

BAD SCIENCE AND BAD ETHICS

THE study of temperance physiology was introduced into our public schools about twenty years ago. Soon after the children of this country quite universally were studying the physiological reasons for obeying the laws of health, including those that teach total abstinence from alcoholic drinks and other narcotics, with indorsed books adapted to grade in their hands, the brewers began to complain of loss of profits.

Then criticisms, vague and indefinite, began to appear, charging that the indorsed text-books were inaccurate in their teaching on the alcohol question. These charges, emanating from many different sources, culminated in the attacks of the physiological sub-committee of the Committee of Fifty which were triumphantly refuted. This refutation in pamphlet form, entitled "Reply" to this sub-committee, on motion of Senator Gallinger, a distinguished physician, was made a government document (Senate Document No. 171) by the unanimous vote of the United States Senate.

Whoever examines these different attacks extending over a period of ten years or more, and the replies to the same which are all on file at the Bureau of Scientific Temperance Investigation, will observe that manifestly one hand and one purpose pervades them all, and that silence, when their false charges are refuted, has been a common method.

But it would be a mistake to infer that because these critics do not always answer back at once that therefore they have given up the battle. When enough time has elapsed for the story of the absolute refutation of their charges to have passed from the public mind, the same old accusations appear again, asserted as vociferously as if they had not been proved false.

This is well illustrated by the recently issued "Summary of the Report of the Committee of Fifty," which contains some of their former attacks upon scientific temperance instruction as unblushingly restated as though these had never been shown to be unwarranted.

The purposes of the Committee as seen in this book, like those of other critics, are two in number. The first is shown in the following quotation from page 35 of the "Summary":

> "It is not desirable to attempt to give systematic instruction to all children in the primary schools on the subject of the action of alcohol or of alcoholic drinks. To older children, and especially those in the high schools, it does seem proper that instruction should be given as to the principal facts known about the use and effects of alcoholic drinks."

To carry out this recommendation would take the study away from 90 to 95 per cent of the future voters of our land, because that proportion of pupils does not remain in school long enough to reach the grades where the committee think this subject ought to be taught. They give no reason for this recommendation.

We can understand why brewers and owners of brewing stock should be unwilling for the future majorities, the law-making power of this country, to be taught the real nature of alcoholic drinks and other narcotics as shown by modern science, but not why an intelligent American citizen who wants only the welfare of his country should desire the same thing.

The poor man's child who must early leave school to go to work, and can therefore stay in school only through the lower grades, has as much need of this study as the more affluent, and the state has need that such children, while they stay in school, shall receive just as much instruction on this vital subject as they can comprehend, to fit them to become good citizens. That every child, the poor as well as the rich, is heir to the knowledge of all the ages is a fundamental principle of our government for the people.

The second purpose of the critics is set forth by them on page 37 of the "Summary of the Investigation" in the following sentences:

> "It should not be taught that the drinking of one or two glasses of beer or wine by a grown-up person is very dangerous, for it is not true."
>
> "[Alcohol] when taken habitually should be only at meals, and as a rule, only with the last meal of the day or soon after it."

How do they know that the first statement is not true? No one has ever yet been able to foretell whether a given person is always immune to the power of alcohol to destroy self-control.

How does the Committee of Fifty know that any adult person may not have already reached the border line between self-control and the uncontrollable and destructive appetite which it is the nature of alcohol to create? In every drunkard's history there was a time when the drinking of one or two glasses of wine or beer was very dangerous.

The statement made in connection with the two quotations above that alcoholic drinks "are not needed by young and healthy persons, and are dangerous to them in so far as they tend to create a habit," throws out more distinctly the second purpose of this book, namely, to teach that moderate drinking at night with the last meal of the day is safe for adults, a statement unwarranted by science and morally pernicious, and one that if not refuted will greatly multiply our annual crop of drunkards.

Professor Max Gruber very forcibly stated the fallacy of these assertions in saying, "No one can foretell whether or not he is susceptible to alcohol. He finds out only by playing a game of chance with his own life which is a dangerous experiment."

Even if the adult drinker himself does not enter a drunkard's grave, can the Committee of Fifty prove that the drinking at night of one or two glasses of beer or wine with the last meal of the day will have no disastrous effects upon his descendants?

Dr. T. A. MacNicholl says:

"In a study of the relation of heredity to the mental deficiency of children, undertaken for the New York Academy of Medicine, I was forcibly impressed with the conspicuous position occupied by alcohol. A more extensive study verifies the facts then described, and gives added emphasis to alcohol as a factor in mental deficiency. . . .

"Of the children of drinking parents but abstaining grandparents, 73 per cent were dullards.

"Of the children of abstaining parents but drinking grandparents 78 per cent were dullards.

"Of the children of abstaining parents and grandparents, 4 per cent were dullards. . . .

"Alcohol, by destroying the integrity of nerve structures, launches hereditary influences which by continuous transmission gain momentum and potency and leave their impact upon gland and nerve until mental faculties are demoralized, physical energies hopelessly impaired, and the moral nature becomes degenerate and dies."

Men who attempt to advise the public as to the safety of using alcoholic drinks should know the foregoing facts.

The attempt is again made in this "Summary" to re-galvanize into life the age-old fallacy that in some sense alcohol is a food, in the face of the awakened testimony of science to the contrary, well expressed by Professor Kassowitz of Vienna who recently said, "A poison like ethyl alcohol can not be called a food."

Any attempt to uphold moderate drinking by adults with the last meal of the day or at any other time, that omits in the same connection to portray the power of alcohol to enslave the drinker and his children and children's children, is a most pernicious use of half-truth, the worst form of an untruth.

"They gladly come and sadly go,
The New Year white as drifted snow,
The Old Year dark with sin and woe."

THE WONDERFUL WEAVER

There's a wonderful weaver high up in the air,
And he weaves a white mantle for cold earth to wear.

With the wind for his shuttle, the cloud for his loom,
How he weaves, in the light, in the gloom!

O, with finest of laces he decks bush and tree;
On the bare, flinty meadows a cover lays he.

Then a quaint cap he places on pillar and post,
And he changes the pump to a grim, silent ghost.

But this wonderful weaver grows weary at last,
And the shuttle lies idle that once flew so fast;

Then the sun peeps abroad on the work that is done,
And he smiles; "I'll unravel it all, just for fun."

—*Selected.*

REFUSAL TO CO-OPERATE WITH THE COMMITTEE OF FIFTY

Resolutions unanimously adopted by the National Woman's Christian Temperance Union at Los Angeles, California, 1905.

WHEREAS, Every charge brought by the physiological sub-committee of the Committee of Fifty against the teaching of scientific temperance in the public schools and against the indorsed school literature on this subject has been triumphantly refuted in the "Reply" to that sub-committee, which was made a government document (Senate Document 171) by unanimous vote of the United States Senate, February 27, 1904, and

WHEREAS, In spite of this fact, the committee preparing the last report of the Committee of Fifty—entitled a "Summary of Investigations on the Liquor Problem"—although no longer characterizing the scientific temperance movement as an "educational excrescence" and an "incubus" to be removed from our public school system, as it did at first, has still in this "Summary":

1. Reiterated its former charge, which its experiments did not prove, that this instruction is unscientific and undesirable.

2. Stated that these educational methods receive little or no support from the members of the medical profession, which is unsustained by fact.

3. Continued to oppose systematic instruction to all children in the primary schools on the subject of alcohol or alcoholic drinks, proposing to confine such instruction to older children, especially those in the high schools.

4. Suggested that the schools teach that beer and wine in moderate quantities may be in a certain sense a food, although an expensive one, *i. e.*, that when taken habitually it (alcohol) should be only at meals or after the day's work is done, implying that there is little or no danger in such practice for adults; therefore

Resolved, That we, the National Woman's Christian Temperance Union, in Convention assembled at Los Angeles, California, express our regret at the continuance of these unfounded attacks of the Committee of Fifty against this teaching which the American people have made compulsory in the public schools of the entire nation, and

Resolved, That we call the attention of the Committee of Fifty and the general public to the following facts concerning the action of the medical profession in behalf of this study:

1. The action of practically the entire medical profession of Great Britain, in recommending to every school board in England, Scotland, Ireland, and Wales, through a committee of their most distinguished members, the Course of Study in Physiology and Hygiene prepared by the Department of Scientific Temperance Instruction of the Woman's Christian Temperance Union of America, a course which specifies as subjects that must be taught to save a nation from degeneracy the very statements challenged as inaccurate by the Committee of Fifty.

2. The resolutions unanimously and enthusiastically passed by the American Medical Society for the Study of Alcohol and Other Narcotics, at their annual meeting held in Portland, Oregon, July 12, 1905, in connection with the annual meeting of the American Medical Association, in which they declare that they rejoice in the evidence that the public school "teaching in America of physiology and hygiene, including the nature and effects of alcoholic drinks and other narcotics, is resulting in better obedience to the laws of health and in a growing sentiment in favor of public sanitation and total abstinence, and urge upon boards of education, teachers, and all intrusted with the instruction of the children and youth of our land, the importance of the most faithful inforcement of our temperance education laws.".

3. The report of the committee on the teaching of hygiene in the public schools submitted at the last annual meeting of the American Academy of Medicine, another national medical society, which declares that the development of the school literature in temperance physiology "has paralleled that of medical text-books during the same period, and that it is probable no other kind of school literature has evolved so rapidly to this degree of merit; that it is certain that no other country has so good; and that the leading physicians and educators of England almost unanimously, and those of Germany and of lesser governments, are urging the American teaching of hygiene and temperance on a physiological basis," and

Resolved, That inasmuch as the omission of this study in primary schools, confining it to older children, especially those in the high schools, which the Committee of Fifty recommend, would take it from the majority of the future American citizens (the coming law-making power), and would be a violation of the spirit of the laws of the entire nation, and of the letter of the laws in the great majority of states which require this study to be pursued by all pupils in all schools (thus defeating the object of the law—which is to secure a strong achieving race of intelligent total abstainers), and as the Committee of Fifty and every one else have failed to prove that the moderate use of alcohol by adults either "be-

fore or after meals" or "after the day's work is done" will never result in an uncontrollable appetite which may destroy the drinker or entail upon his descendants the consequences which follow even the moderate use of alcohol; therefore, the Woman's Christian Temperance Union of the United States can never co-operate in any scheme of education which will take this study from the lower grades, or modify in any way the utmost warning authorized by science against the beverage use of alcohol at any period of life, which can be comprehended by children in a progressive study for all grades of our public schools, and

Resolved, That inasmuch as the Committee of Fifty now admit that the text-books used in our public schools are usually in accord with what they consider extreme total abstinence views, and that the publishers often find it difficult to sell text-books (in temperance physiology) which are not indorsed, *i. e.*, approved by a competent committee officially authorized by the National Woman's Christian Temperance Union to examine the books, we rejoice in these facts, since they are evidence that the American people want their children taught in full the physiological reasons for obeying the laws of health, including those which teach total abstinence from the beverage use of alcohol, and

Resolved, That these resolutions be given to the press of the country, that they be sent for publication to the *Union Signal* and other temperance and religious papers, and that they be printed in leaflet form by the superintendent of the Scientific Temperance Instruction department, Mrs. Mary H. Hunt, for general distribution.

MRS. FRANCES E. BEAUCHAMP,
Pres. Kentucky, W. C. T. U.
MISS MARIE C. BREHM,
Pres. Illinois W. C. T. U.
MRS. HELEN M. STODDARD,
Pres. Texas W. C. T. U.
MRS. B. LAYTHE SCOVELL,
Pres. Minnesota W. C. T. U.
MRS. ANNIE W. CLARK,
Pres. Ohio W. C. T. U.

ANOTHER YEAR

BY JOHN W. CHADWICK

Another year of setting suns,
Of stars by night revealed,
Of springing grass, of tender buds
By winter's snow concealed.

Another year of summer's glow,
Of autumn's gold and brown,
Of waving fields and ruddy fruit
The branches weighing down.

NEW YEAR RESOLUTIONS

BY ELLA WHEELER WILCOX

AS the dead year is clasped by a dead December,
So let your dead sins with your dead days lie.
A new life is yours, and a new hope. Remember,
We build our own ladders to climb to the sky.

Stand out in the sunlight of Promise, forgetting,
Whatever the past held of sorrow or wrong.
We waste half our strength in useless regretting;
We sit by old tombs in the darkness too long.

Have you missed in your aim? Well, the mark is still shining.
Did you faint in the race? Well, take breath for the next.
Did the clouds drive you back? But see yonder their lining.
Were you tempted and fell? Let it serve for a text.

As each year hurries by let it join that procession
Of skeleton shapes that march down to the Past,
While you take your place in the line of Progression,
With your eyes on the heavens, your face to the blast.

I tell you the future can hold out no terrors
For any sad soul while the swift stars revolve,
If he will stand firm on the grave of his errors,
And instead of regretting, resolve, resolve.

It is never too late to begin rebuilding,
Though all into ruins your life seems hurled,
For see how the light of the New Year is gilding
The wan, worn face of the bruised old world!

"Johnny," said his mother, severely, "someone has taken a big piece of this ginger-cake."

Johnny blushed guiltily.

"Oh, Johnny," she exclaimed, "I didn't think it was in you!"

"It isn't all," "replied Johnny. "Part of it's in Elsie."—*Journal of Education.*

Through the courtesy of two Kansas City business men, Mr. R. A. Long, President of the Long Bell Lumber Company, and Mr. Robert Keith, President of the Robert Keith Furniture Company, the SCHOOL PHYSIOLOGY JOURNAL has been placed in each of Kansas City's fifty-eight schools. This is an example that deserves emulation by business men in other places.

Grammar Lessons

ADVANCED WORK

A CURRENT FALLACY

AN attempt, not wholly disinterested, is being made to make it appear that beer is food because chemical analysis shows that it contains certain substances (proteids) that are classed with foods. This from the scientific point of view is arrant nonsense.

You may help your class to accurate ideas on this subject by beginning an exercise with this question on the board,

What is food?

Refer the class to their text-books, and help in expression until a pupil called to the board can write the answer,

DEFINITION OF A FOOD

A food is any substance that nourishes the body, or furnishes heat and energy without injuring it.

Have the class write this definition in their note-books, lead them to discuss it, and ask questions, impressing upon them the importance of remembering it as it will help them rightly to decide important questions.

Then state a case like this:

If I were to mix water, sugar, and well-boiled oatmeal water, would such a drink be a food? When the class has tried it by their definition, they will decide that inasmuch as it furnishes heat and energy to the body and does not injure it, it is a food.

We will suppose that we have four quarts of this pleasant and healthful drink. Now if I were to add a few grains of arsenic to it could it still be called a food?

Does not the sugar and oatmeal still furnish heat and energy? Why, then, is it not a food?

Bring out the point that a poisonous substance has been added.

But the quantity of arsenic in the beverage is small and one might drink sevreal glasses without being fatally poisoned. Might not one safely drink one small glass with meals?

Draw out the facts that although the amount of arsenic is so small and is diluted with so much fluid yet its nature remains the same, and its effects on the body will be harmful just in proportion to the amount of the mixture drunk. The teacher may explain that some people have even taken arsenic for some time and in increasing doses and appeared to be unharmed.

Would that necessarily prove that a sufficient quantity would not prove fatal? Some of the class wlll no doubt have read or heard of some fatal case of poisoning from this drug. She may further explain that arsenic, in common with some other poisons, may be taken in small quantities and, though constantly undermining the health, may not produce death for a long time.

(If desirable, the story may be told of the spring that made many beautiful, but killed them at last.)

Even so, would it be wise to drink a beverage that contained even a trifling amount of poison?

BEER

A few days before this subject is brought before the class, ask some pupil to bring to school a small quantity of barley. Lay part of the grain aside and place the rest in warm water, planning to have the grains well sprouted at the time of the lesson.

Let members of the class chew some of the grain that is sprouted and then some that is not, and note the sweet taste of the former. What change has taken place? Explain that when barley is treated this way, then heated to kill the germ and crushed, it is called malt. Is the barley good food? Is the malt food? Why?

Suppose that a brewer took a large quantity of this malt and to it added some hops, or other bitters, water, and yeast, and kept it in a warm place, what change would take place?

By questions and reference to books bring out the fact that the yeast has broken up the particles of sugar into carbon dioxide and alcohol, and that most of the food materials in which the barley was rich have been decomposed and changed into these new elements. What is the drink now called?

Explain that ales and porters are manufactured in much the same way. Make the point perfectly clear that the good barley from which the beer or ale was made has been changed by this chemical process of decomposition and that the beer is no more like the barley than a rotten apple is like a sound one.

Beers contain from four to six per cent alcohol. This being true can they be called a food?

Write upon the board the question,

DEFINITION OF A POISON

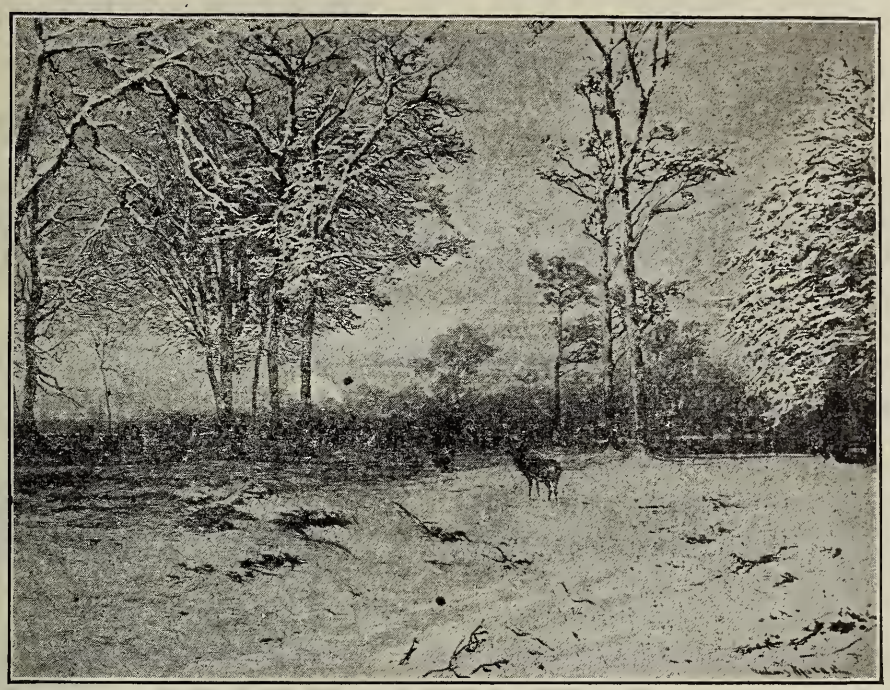
What is a poison?

Question and refer to books till some pupil can write on the board the definition,

A poison is any substance whose nature it is when absorbed into the blood to injure health or destroy life.

Have the pupils write this definition also in their note-books, and lead them to discuss it. Ask them to mention as many poisons as they can.

Make it clear that although when we speak of poison we are likely to think of something like Paris green or strychnine which kills quickly, others, none the less deadly, may be taken in very small amounts for a long time without appearing seriously to injure the health. Such are arsenic, already spoken of, alcohol, morphine, and others.



"Not dead, but only dreaming of the day
That once again shall voice the sweet Spring's call
Of summer's murmuring music."

Now we have this beverage, containing a little sugar, residue of malt, extracts, and alcohol.

According to the two definitions shall we classify beer as a food or a poison?

Tell the familiar story of the saloon-keeper in England who advertised his beer as "liquid bread," and how a member of the British Parliament had a chemist examine it. Two per cent was really food, five per cent was alcohol, and the remaining ninety-three per cent was water.

All that is nourishing in this could be purchased in bread at one-tenth of the cost. A healthy grown person in order to get a sufficient quantity of this kind of food for one day would be obliged to drink eight quarts of beer, which would contain about nine ounces of alcohol.

Allowing that there are two parts of a certain kind of food (proteid) in one hundred parts of beer, does that make beer a food?

Let us see what its effect is on the body. It contains about five parts in a hundred of its bulk in alcohol which, although much diluted, remains unchanged, a poison still.

EFFECTS OF ALCOHOL ON THE BODY

What is the effect of alcohol on the body?

From questions and references to their physiologies help the children to learn and then write in their note-books what the effect of alcohol, even when taken in what is called moderation, is upon

The heart and circulation,
The digestive organs,
The excretory organs,
The brain and nerves.

Emphasize the fact that alcohol, even when taken in small quantities, as in beer and other light drinks, produces changes in the nervous system and thus has the power to create what is called the alcoholic habit, an uncontrollable desire for more.

Instances are not hard to find where large quantities of beer or spirituous liquors have killed persons outright.

Develop a definition something like this:

ALCOHOL A POISON

Alcohol is a substance which, when absorbed into the system, injures to a greater or less degree every part of the body, and has the power to create an uncontrollable appetite for itself.

Let some child write this definition upon the board. Have the class copy it in their note-books and comparing it with the definitions of a food and a poison determine for themselves that it is a poison.

If, then, this beer certainly contains a quantity of poison, is it safe or unsafe to drink it?

AUTHORITATIVE QUOTATIONS

Even were alcohol demonstrated to be actual food under certain conditions, that would not

invalidate its description as a poison. It might be a poisonous food, like the poisonous honey which slew so many soldiers in the famous "Retreat of the Ten Thousand."—NORMAN KERR, M. D., F. L. S.

Dr. Koppe of Germany, in his book, "Das Alcoholsichtum," says:

"The chemical nature of a substance can not change with the quantity, and can not be lost in the smallest quantity; but must in every qualitative analysis remain the same, as long as by progressive divisions this substance as such still exists, even down to the last molecule."

The character of a substance does not depend upon its quantity but its quality.—BENJ. WARD RICHARDSON, M. D., LL. D., F. R. S.

BOOK NOTICES

A MAN OF THE WORLD, by Annie Payson Call. Little, Brown, & Co., Boston. 50 cents net.

Readers of Miss Call's former books, "Power through Repose," "The Freedom of Life," etc. will look in this volume for a sane, strong presentation of the theme chosen, and they will not be disappointed. The man of the world whom she portrays is not a worldly man, but one who, knowing life as it is, its good and bad, deliberately chooses to live, as nearly as he is able, in harmony with the best it can offer, and to render intelligent service to his fellow men. Such essays are an inspiration, to young men especially, although it should by no means be limited to them.

THE CRUCIFIXION OF PHILIP STRONG, by Rev. Charles M. Sheldon. Advance Publishing Co. Chicago. Price, paper 25 cents; cloth 75 cents.

Bishop Vincent who writes the introduction says "The demand of the pulpit in our age is the power to set forth by words well chosen, and by attractive parables which give truth in concrete form, the possibilities of individual and social life . . . When I read the 'Crucifixion of Philip Strong' I hardly knew the author . . . but the story it seemed to me, was born in a soul impressed with and sometimes oppressed by the reality of life. The earnestness of a divine conviction seemed to run like fire along every line . . . It is a wonderfully strong and effective contribution to the Christian literature of this age. Every minister ought to read it—and everybody else." We heartily concur in Bishop Vincent's opinion, and wish the book might be placed in every school, Sunday-school, and public library in the land. As a story it is interesting; and as a convincing plea for the abolishment of the saloon, Sabbath-keeping, the brotherhood of man, and the right use of wealth, it has few equals.

HIS MOTHER'S PRAYERS, by Rev. Charles M. Sheldon. Advance Publishing Co. Chicago. Price 10 cents.

The stories of Mr. Sheldon with their intense interest in humanity are well known to many of our readers. In this story of the widowed mother whose mind has been weakened by the loss of her younger children through the neglect of her drunken husband, the power of alcohol to blight and ruin young as well as old life,—for one of the older boys follows his father's example,—is vividly portrayed. The reader's interest and sympathy are inlisted from the start.

WHO KILLED JOE'S BABY, by Rev. Charles M. Sheldon. Advance Pub. Co., Chicago. Price 10 cents.

A powerful argument against licensing the saloon. It is so inexpensive that it can be freely circulated in no-license campaigns. If judiciously cut it would make a thrilling recitation. It is the story of the fine baby boy who came to broad-chested, big-hearted Joe and his sweet wife Norah, of the saloon that was opened in the town, and of the temptation that was thus thrust upon Joe who had become a sober man only through the most heroic struggle against appetite and his removal to this little village where no saloon was then located. How he was finally overcome by the temptations offered by the new saloon, until in a drunken sleep he killed the baby, is the saddest part of a story that finds its counterpart in many a town and city. And in every such case, it is not only the man who suffers arrest and punishment who is guilty of crime, but also the man who sells the liquor and the voter who allows him to do so. God alone can fix the measure of responsibility that belongs to each.

PHYSIOLOGY TOPICS FOR JANUARY

PRIMARY—Parts which help us to move about: Legs, Feet, Toes. Sense of Smell; why important. Necessity of Pure Air. Brain: Location, Use, Care.

INTERMEDIATE—Respiration. Lungs. Deep Breathing. Exercise. Hand and Foot compared and contrasted. Effect of Narcotics. Temperature of Body; how maintained. Clothing.

ADVANCED—Lung Development; how to prevent Consumption. Special Senses; how made more acute. Structure of Body. Composition of Bone and Muscle.

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With experimental work this book gives a connected outline of the processes which accomplish the maintenance of life in the body and of the rules of hygiene which it is necessary to follow in order to facilitate their harmonious action. Chapters are included upon the nature and action of bacteria in connection with infectious diseases, and also upon physical culture and gymnasium exercises.

Elementary Anatomy, Physiology and Hygiene For Higher Grammar Grades. By Winfield S. Hall Ph.D., M.D., Professor of Physiology, Northwestern University Medical School, ... **Price, 75 cents**

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Oral Lesson Book in Hygiene For Primary Teachers. By Henrietta Amelia Mirick, A. B., Assistant Editor School Physiology Journal. . . . **Price, $1.00**

A manual for the teacher, containing suggestive oral lessons on the most elementary facts of anatomy, physiology, and hygiene, for the first three years of school life. At the end of each lesson are brief memory points summarizing the most important features. Each day's work is thoroughly planned and made simple and interesting.

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The School Physiology Journal

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MARY H. HUNT, EDITOR

VOL. XV. NO. 6
FEBRUARY, 1906.

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School Physiology Journal

Vol. XV *BOSTON, FEBRUARY, 1906* *No. 6*

WORK

BY HENRY VAN DYKE

LET me but do my work from day to day
In field or forest, at the desk or loom,
In roaring market place or tranquil room;

Let me but find it in my heart to say,
When vagrant wishes beckon me astray
"This is my work; my blessing, not my doom.
Of all who live, I am the only one by whom
This work can best be done in the right way."

Then shall I see it not too great, nor small,
To suit my spirit and to prove my powers;
Then shall I cheerful greet the laboring hours,
And cheerful turn when the long shadows fall

At eventide, to play and love and rest,
Because I know for me my work is best.

THE BEGINNINGS OF SCIENTIFIC TEMPERANCE

BY MARY H. HUNT

HOW did you become interested in scientific temperance instruction in the public schools, is a question I am so frequently asked that I am constrained to reply, although to do so is to open the door of deep personal experience. Not of sorrow because of the use of alcohol by my own loved ones, for I have been spared that bitterness, but because it is difficult to speak of the invisible power that can haunt the soul and shape destiny for one obedient to the vision, almost compelling choice by its clear portrayal of the path one is to take.

I had been a professing Christian since my young girlhood; but in the early 70's a deeper religious experience came to me, a part of which was a broadening sense of the meaning of God's kingdom on earth. I was profoundly moved in a way I could not understand by the clause in our Lord's prayer, "Thy kingdom come." I could not hear that petition even in public worship without trembling with emotion.

I prayed for wider Christian service, thinking the answer might be a new pupil in my Bible class, or another poor family I might help, but the real answer was yet to come.

I had been professor of chemistry in one of our eastern colleges. In the course of the scientific reading I had kept up after my marriage, I came upon Youman's work on the physiological action of alcohol, and the reports of experiments showing the nature and effects of alcoholic drinks made by Dr. B. W. Richardson of England. My previous studies in chemistry enabled me to follow Dr. Richardson's work, and to see that as alcohol is a brain poison that deadens the mechanism through which the soul responds to spiritual and moral motives, its use as a beverage, in the nature of things, is a hindrance to the coming of God's kingdom in human hearts, just in proportion to the extent of its use, and furthermore, that, as it is the nature of alcohol to destroy the individual's capacity for self-government, its use by Americans means destruction of this free government.

I further saw that the beginning of the whole drink evil is the ignorance of the people as to the real nature of alcohol and the power of a little to create the desire for more that may become uncontrollable. Thus I came to see that the education of the whole people concerning the dangerous character and evil effects of alcoholic drinks is the logical preventive of this greatest of all hindrances to the answer to the prayer, thy kingdom come," and to every petition for the safety of our republic. These conclusions haunted me until they became the commanding conviction that somebody ought to secure such education, but I did not then dream that I was to help secure it.

About that time the marvelous Crusade Movement came, finally taking permanent form as the Woman's Christian Temperance Union, with branch organizations in every part of the country. I joined this body of consecrated women, and spoke in their meetings of the need of education as to the revelations of modern science against alcohol. Aroused interest led to invitations far and near to present this aspect of the subject. The people were ready to hear.

In 1879, I presented my convictions to Miss Willard, at that time my guest, and my plans as far as developed, which have resulted in the legislation that now makes the study of the laws of health, including those that teach total abstinence from alcoholic drinks and other narcotics, compulsory for the millions of children in the public schools of the United States.

She listened with interest, but seemed to think it was a shot at long range. At that time she was presenting what she called Home Protection, her method for the overthrow of the drink evil through woman's ballot. "But," she added, "come to the National Woman's Christian Temperance Union Convention to be

held at Indianapolis this fall, and we will appoint a standing committee with you as chairman to carry out your ideas of scientific temperance instruction in the public schools." I went, and was made chairman of such a committee.

The report of the appointment of this committee in the Minutes of the Indianapolis Convention is the first mention in the records of the National Woman's Christian Temperance Union Conventions of any one receiving the authority of that body to secure officially the introduction of this study into the public schools.

I am asked if there was not a recommendation for the creation of a department for scientific temperance instruction in public schools in Miss Willard's plan of work presented to the first National Woman's Christian Temperance Union Convention, in Cleveland, November 18, 1874.

The minutes of that convention contain a recommendation for "teaching the children in Sabbath schools, and public schools the ethics, chemistry, and hygiene of total abstinence."

But Mrs. Mattie McClellan Brown, a surviving member of that committee, says, "Miss Willard did not write that recommendation which it was agreed she should read to the convention; I myself wrote it." Then she adds, "But, my dear Mrs. Hunt, I did not dream of the magnificent method you have devised and carried to glorious execution in this country."

Miss Willard was a woman of rare ability and did a marvelous work along other temperance lines, but not this.

The next year after the appointment of this committee it was, at my request, merged into the Department of Scientific Temperance Instruction of the Woman's Christian Temperance Union, and I was appointed superintendent. In this capacity, it has been my duty to organize the work by securing workers in all parts of the country, to originate and direct plans of work, and to co-operate with state, county, and local workers in carrying out those plans which have made this form of temperance education a part of the public school system of America.

The first and always present feature of this work has been to study carefully the testimony of the many different sciences involved to learn if total abstinence is defended by science.

The feasibility of making the nature and effects of alcoholic drinks a prominent feature of the study of the laws of health, and of making both a part of our public school course had also to be studied pedagogically.

School statistics had to be carefully scanned to find in what grades this study must be pursued in order to reach the coming majorities, the law-making power in this country.

The possibility of a government of the people making this study compulsory had to be considered. All this and more were features in the inception of the plan which has made this study a success in the public schools.

As already intimated, one of the main features in this education has been from the first and still is an exhaustive study of the findings of science as to what is true and should therefore be taught on the whole subject of hygiene, including the truths as they have been rapidly revealed by science concerning the nature and effects of alcoholic drinks and other narcotics. Without this exhaustive and expensive investigation which it has been my lot to conduct and financially support through all these years, the whole undertaking would have been a failure.

When law-makers said there was nothing to teach, we were able to bring forth from the storehouse of accumulated facts a long array of scientific testimony concerning the truth that should be taught. And when the accuracy of the teaching of the indorsed books in the schools has been assailed, we have had in the same repository ready defence for these truths against alcohol which, as taught in the schools, are helping to make us the most sober of the great nations.

These, in brief, are the main facts in the history of the beginning of this movement as I know them. They are based on records and reports as well as experience and recollection.

To tell only briefly of the campaigns in the great and smaller states and in the National Congress which have made this study universally compulsory, and of the attacks upon and defense of the scientific truths concerning total abstinence and other laws of health that are being taught the children of the American people, would fill a volume. Every step in the progress of this cause during the past thirty years has been a hard fought battle, marvelously defended by the same unseen Power which compelled its inception.

For myself I claim no credit. As a leader of the mighty hosts of godly Christian Temperance Union women in this work, I have tried to follow the great Leader without whose guidance all our efforts would have been in vain.

As Director of the Bureau of Scientific Temperance Investigation and Superintendent of the Department of Scientific Temperance Instruction, I have worked my passage without salary or personal profit from text-books.

Between $8,000 and $9,000 each year are expended by the National Bureau and Department in literature, foreign and American, wages to secretaries and stenographers, printing, postage, office supplies, travelling, etc. Towards this amount the National Woman's Christian Temperance Union contributes $800 per year. $1,200 are promised for the coming year. The balance is met by the proceeds of my literary

and platform work, and by contributions personally solicited by me from churches, societies, and individuals who see the relation of this form of education to the preservation of the republic.

Roaming in thought over the universe, I saw the little that is good steadily hastening towards immortality;
And the vast all that is called evil I saw hastening to merge itself and become lost and dead.
—WALT WHITMAN.

The Woman's Christian Temperance Unions of Delaware, at the last state convention, voted to send the SCHOOL PHYSIOLOGY JOURNAL to every public school in the state for the current year. Delaware has already made a record for herself in prize contests in the interests of scientific temperance, and now, with the additional help of the JOURNAL provided monthly for the teachers, we may expect a yet greater impetus to be given to this important work of educating the children in the physiological reasons for obeying the laws of health, including those which teach total abstinence.

Frequent reports come to us of the gratitude of teachers for the gift of the JOURNAL. One county superintendent of schools writes:

"You good people have done an excellent thing in placing the SCHOOL PHYSIOLOGY JOURNAL in so many schools. Your effort will bear fruit in abundance. I thank you in the name of the teachers."

MARY HANCHETT HUNT

(Taken in the early years of her work for Scientific Temperance Instruction.)

FOUR RULES FOR SMOKERS

Never smoke before a meal, as tobacco is hurtful on an empty stomach.

Never smoke after a meal, because tobacco produces indigestion.

Never smoke out of doors, because you become a public nuisance.

Never smoke indoors, because you become a nuisance to your family.—*Crusader Monthly.*

THE VITAL FACTOR

BY THEODORE ROOSEVELT

THE Golden Rule should be, and, as the world grows in morality, it will be the guiding rule of conduct among nations as among individuals.

This government stands for manhood first, and for business only as an adjunct of manhood.

In the long run, the one vital factor in the permanent prosperity of the country is the high individual character of the average American worker, the average American citizen, no matter whether his work be mental or manual, whether he be farmer or wageworker, business man or professional man.

We desire to set up a moral standard. There can be no delusion more fatal to the nation than the delusion that the standard of profits, of business prosperity, is sufficient in judging any business or political question—from rate legislation to municipal government. Business success, whether for the individual or for the nation, is a good thing only so far as it is accompanied by and develops a high standard of conduct—honor, integrity, and civic courage.

FEBRUARY

BY CHRISTINA ROSSETTI

I WONDER if the sap is stirring yet,
If wintry birds are dreaming of a mate,
If frozen snowdrops feel as yet the sun,
And crocus fires are kindling one by one:
Sing, Robin, sing;
I still am sore in doubt concerning spring.

I wonder if the springtide of this year
Will bring another spring both lost and dear;
If heart and spirit will find out this spring,
Or if the world alone will bud and sing;
Sing, hope, to me;

The sap will surely quicken soon or late,
The tardiest bird will twitter to a mate;
So spring must dawn again with warmth and bloom,
Or in this world, or in the world to come;
Sing, voice of spring,
Till I, too, blossom, and rejoice, and sing.

Primary Lessons

FIRST YEAR

THE HAND

DURING the last decade the value of manual work for children has come to be appreciated. Psychology has shown that the power to think and the power to do are closely related. Training in the one is to a great extent training in the other.

In a variety of ways this knowledge has been applied to school work. It begins in the kindergarten and lasts through the high and technical schools.

In the primary grades it is unwise for the teacher to have the children attempt fine work of any kind. They are not ready for it, and it may injure them. But hand work that is suitable for the grades should always be used to supplement and illustrate the lessons. Encourage the use of the left hand as well as the right in all such work.

ITS SHAPE AND PARTS

Put the hand down flat on a piece of paper and trace its shape.

What parts do you find?

How many fingers?

How many thumbs?

What is the inside of the hand called? The palm.

The outside? The back.

How are the fingers joined to the main part?

What are the knuckles for?

Bend the fingers in as many places as you can. Are they stiff or limber?

How many parts to each finger? What is the name of the place where the finger bends?

How many joints on each finger? How many on the thumb?

What grows on the ends of the fingers? Of what use are the nails?

COMPARISON WITH ANIMALS

What have animals instead of hands?

What is the difference between a cat's paw and your hand? Between a horse's fore foot and your hand?

Can you think why there should be so much difference?

What has a bird instead of hands? A fish?

USE OF THE HANDS

What do we do with our hands? Which hand do we use when we write? When we sew? When we eat?

Most people use the right hand for these things, but it is well to make the left hand do as much as it possibly can. Then if we hurt the right hand the left will be ready to take up its work.

CARE OF THE HANDS

How shall we take care of the hands? How often shall we wash them? What shall we use to make them clean?

How ought we to keep our nails? What shall we use to clean them? How long shall we let them grow? What must we never do to our nails?

When it is very cold weather and we go out without our mittens, how do our hands feel the next day? Sore.

At night, if we put a little cold cream or mutton tallow on our hands, and rub it well into the skin, it will make them feel softer and better.

Our hands are little servants. If we would have them do good work, we must keep them clean and treat them well.

SENTENCES

We have two hands.

There are four fingers and a thumb on each hand.

We write with the right hand.

We must keep our hands clean.

EXERCISES

(Probably the teacher can not use all of these exercises in one lesson. They may follow more violent exercise.)

Class stand.
Arms forward stretch.
Hands close, open.
Arms sink.

Arms sidewise stretch.
Hands close, open.
Arms sink.

Arms upward stretch.
Hands close, open.
Arms sink.

Arms forward stretch.
Hands shake rapidly from wrist.
Arms sink.
Class sit.

THE ARMS

FIRST YEAR

WHILE the first grade is too early for much training of the fingers, anything that requires sweep—arm and wrist movements—will be in order.

We can not tell what the future holds for the child, but a good physical development will never come amiss in any walk in life.

A strong arm is essential to a blacksmith; it is no drawback to a lawyer or a minister. A skilful hand is necessary for a dressmaker; it does not hamper the housekeeper or writer.

SHAPE OF THE ARMS

What shape is your arm?

Here is a base-ball bat. What is the difference between the two?

Try to pick up something from the floor without bending your arm or wrist. Why is it hard to do this?

In how many places can you bend your arm? What do we call the parts of the body which bend?

What is the upper joint of the arm called?

Move your arm from the shoulder. In how many ways can you move it?

What is the name of the joint in the middle of your arm? How does that bend?

Is there any difference between the way you can bend your arm at the elbow and the way you can move it at the shoulder? Tell about it.

What is the name of the joint between your arm and hand?

How many parts are there in the arm? They are called fore arm and upper arm.

"A smile as bright as mine may be
Precisely your necessity."

USE OF THE ARMS

What do we use our arms for? Name some things which you could not do if you did not have arms.

What do the birds have instead of arms? What do they do with their bills that they would use hands and arms for, if they had them?

What have animals instead of hands and arms? What do they do with their mouths that they might use hands and arms for?

TRAINING OF THE ARMS

How do we want our arms to grow? What can we do to make them grow strong?

Can you think of any game that will make the arms strong? What work will make them strong?

If we want them to grow strong, we must use them every day.

Did you ever see the arms of a blacksmith? Why have his arms grown so strong?

Using our arms every day will make them strong.

SENTENCES

I have two arms.

My arm bends at the elbow.

I move my arm from the shoulder.

The wrist is between the arm and the hand.

EXERCISES

(Not more than one or two of these exercises should be used at one time. They are offered merely as suggestions.)

Class stand.

Arms bend (fists touching shoulders).

Right arm forward stretch 5 times.

Left arm forward stretch 5 times.

Alternate arms forward stretch 5 times.

Both arms forward stretch 5 times.

In same way, arms upward, sidewise, and downward stretch.

Right arm upward, left arm sidewise stretch.

Arms change 5 times.

Right arm forward, left arm upward, stretch.

Change 5 times.

Class sit.

Alcohol, even in small quantities, when taken by children, has a direct effect in retarding, not only the physical but their mental development. It must be accepted as a fact that very smal quantities of alcohol interfere with the growth of tissue, with the growing muscles and developing nerves of children.—G. SIMS WOODHEAD M.D., F. R. S. E., Cambridge University, London

TASTE

SECOND YEAR

CALL one of the children to the front of the room. Ask him to shut his eyes and hold his nose tightly with his handkerchief.

Place a bit of apple in his mouth and have him try to tell what it is by the taste alone.

If he fails, as he probably will, try him with another piece while he keeps his eyes still shut, but this time has his nose uncovered.

If I give you something to eat which you have never seen, how do you know you like it?

Would you rather go on an errand alone or have some one go with you?

SMELL ASSISTS TASTE

Taste has a friend near by who lives in a double house.

What is this friend's name?

What sense helped Taste to know it was apple I gave John?

Tell me the names of other foods you know by the smell as well as by the taste.

Smell and taste live near each other, and help each other.

When you have a bad cold, can you taste well?

When you have burned your mouth with a hot drink, can you taste well?

You have a friend that stands at the door of your mouth and tells you what it would like to keep out. This little friend is dressed in red. What is his name?

If you eat an apple in the dark and should bite into a decayed spot, what would tell you not to swallow it?

Do you think you would enjoy eating if all food was tasteless?

Taste is a very good friend, but sometimes we can not trust him.

TRAINING OF THE SENSE OF TASTE

We can train Taste just as we can train the voice.

If you wished to train an animal, when would you begin?

If you wished to train him to eat only good food, would you ever give him bad food?

Would you try to make him think bad food was good for him? Why not?

If you are careful about feeding your pet animals, what kind of food should you give yourself?

If your father gave you a new knife and should see you trying to whittle a stone with it, what do you think he would say to you?

What would the stone do to the edge of the knife?

You do not like a dull knife because it does not do good work.

THINGS THAT DULL TASTE

A dull taste can not do good work.

If your taste is dulled you can not enjoy anything you eat.

There was once a boy who learned to smoke cigarettes. At first he thought they did not hurt him. But after a time he grew weak and sick.

He had to give up work. Nothing he ate tasted good. When he smoked he said it gave him "a dark brown, fuzzy taste."

Any one who has dulled his taste by using tobacco and alcohol can not enjoy his food so well as he might.

THINGS TO REMEMBER

I can train my taste so that I shall like only good and healthful food and drink.

Animals will not taste drinks that contain alcohol.

Alcohol and tobacco dull the sense of taste.

ALCOHOL DULLS THE SENSE OF TASTE

What dulls the sense of smell and the sense of taste is the glass of beer—the glass of spirits. —DR. VACHER, F. R. C. S.

It has been demonstrated that in perfectly healthy young individuals moderate doses of alcohol lessen the special senses in an almost uniform ratio, so that vision, hearing, smell, taste, touch, and muscular force are all appreciably lessened.—HENRY O. MARCY, M. D., LL. D., in *Journal American Medical Association.*

A NURSERY TEA

BY ELIZABETH LINCOLN GOULD

WHEN I have cake and jam enough
For two, or maybe three,
I beg Louise or Grace to come
To supper here with me.

But when there isn't very much,
And yet I'd like a guest,
I'll tell you who's the nicest one,
The pleasantest and best;

It's my dear Angelina Maud,
'Cause when I move her up
In her high chair, and set for her
A plate and spoon and cup,

And things to eat, she sits right there
With such a lovely smile,
And not one bit of appetite!
And when a long, long while

Has gone, and still she doesn't touch
A mouthful, then I say,
"I'll eat your share to save it,"
And she smiles and smiles away!

TOUCH

SECOND YEAR

BEFORE giving this lesson, make a collection of objects varying in texture and size, and place them on a table where all the class can see them.

Call as many of the children as time will allow, singly, to the front of the room. Place the child with his back to the table. Ask him to put his hands behind him.

TESTS TO RECOGNIZE OBJECTS BY TOUCH

Put one of the objects into his hands and have him tell what it is.

Put a square block in one hand, a round one in the other, and ask the child to say which is which.

Put a bit of cotton in one hand, silk in the other. Ask him to name each.

Make similar tests with other familiar objects.

Another day the teacher may have in a basket a sufficient number of objects for the whole class.

Ask the children to close their eyes, drop the right hand at the side.

My father says I help him more
Than any man he's had before.

Place an object in the hand of each child, having told the class they must play fair, and that no one must open his eyes until he has told what he has. He may then watch the other pupils.

Ask each child how he knew he had a piece of cotton, etc.

How can we tell wool from cotton?

Cotton from silk?

A peach from an apple?

An apple from a plum?

A marble from a ball?

The bark of a tree from a cane?

How much can you find out about a ball by touching it? A piece of ice, a pencil, the floor, a pail, your desk, the door knob, a nail, a book, a piece of wood, cotton, silk, a snow ball, a cup of cocoa, a piece of iron, a blade of a knife, a needle, a pin, the leg of a chair, a peanut, a feather?

II

The object of this lesson is to acquaint the child with the different qualities of objects and show how touch will help him in this.

SHAPE OF OBJECTS

Place a child as directed in the foregoing lesson, and give him a sphere and a cube.

Ask him to hold up the sphere, the cube.

How do you know which is which?

(To the class.) What sense helped John to tell one from the other? Ask the class to name things that are spherical, things that are cubical.

The teacher may then write this statement on the board:

The sense of touch tells us the form of an object.

TEXTURE OF OBJECTS

Call another child, and place in his hand two objects nearly alike in size and shape, but entirely unlike in texture and ask him to tell the class the difference.

Ask the class to name things that are smooth; things that are rough

(Board statement:)

The sense of touch tells us whether objects are smooth or rough.

TEMPERATURE OF OBJECTS

Suppose we had two glasses of water on this table, one filled with warm water, the other with cold; what sense would help us to tell one from the other if our eyes were closed?

(Experiments may be performed if warm water is available.)

Class name things that are hot, things that are cold.

(Board statement:)

The sense of touch tells us whether things are hot or cold.

WEIGHT OF OBJECTS

If I have a piece of wood and a piece of iron

both the same size, how can I tell one from the other, without looking?

(Board statement:)

The sense of touch tells us whether objects are heavy or light.

Class name things that are heavy, things that are light.

(Speak of the wonderful things done by blind people by means of the sense of touch.)

Class read statements from board.

LOCATION OF TOUCH

Where is our sense of touch?

Are there any parts of our bodies that have no sense of touch?

Let the children experiment until they find out that the sense of touch is present in all parts of the body except the hair and tips of the nails. Why not in these parts?

HOW TO HANDLE OBJECTS

We need to know how to touch or handle things.

If one of you should bring a glass vase to school to show the other children, how would you wish them to handle it?

No one can do very fine work when he grows up unless he can handle things carefully and hold them steadily.

EFFECT OF ALCOHOL AND TOBACCO

The use of alcohol and tobacco weakens the nerves that guide the hand. It makes them unsteady.

People who do delicate work need steady hands.

What kind of a touch do we need?

THINGS TO REMEMBER

We can learn many things by touch.

We should handle things carefully.

We need to hold things steadily.

Alcohol and tobacco may make the hands unsteady.

It would be educative if, following this lesson, the teacher should lay a flower or an article not valuable on the desk of the child who sits in the front seat of the first row. Let him pass it to the next child, and so on.

When it has gone the rounds, let the class decide whether or not it has been handled carefully.

AUTHORITATIVE QUOTATIONS

BODILY TRAINING AIDS MENTAL DEVELOPMENT

Physical training, in developing the capacity of self-direction and self-control in the pupil, of necessity develops the will. The child who is so educated physically as to discover that he has gained complete command of what would have remained an awkward and uncouth body, soon learns from the masterly control of a well-knit physique to overcome all obstacles.

—*Dietetic and Hygienic Gazette.*

ALCOHOL MAKES THE HANDS UNSTEADY

So far from thinking quickly, he [the man who has taken alcohol] is really thinking more slowly; so far from calculating better, he is calculating worse. And what is true of the effect of alcohol on the thinking part of the brain is equally true of that part of the brain which governs the finer movements of our hands and other fine movements. When a person thinks he is executing a movement more accurately, exactly the opposite is the case.—Sir Victor Horsley, M. D., University College, London.

THE POISON IN TOBACCO SMOKE

In some particulars the physiological action of nicotine and of carbon monoxide is similar. The dizziness and stupor, the trembling of the limbs and hands, the disturbance of the nerve centers and of the circulation, and the feeble pulse may be the indications of either carbon monoxide or nicotine poisoning. One ounce of tobacco gives no less than one fifth of a pint of pure carbon monoxide gas when smoked in the form of cigarettes,and probably as much more in the form of cigars or pipes.—*London Lancet.*

SAVED HIS HAND

A young laboring man was brought to a certain hospital with a badly lacerated hand.

As time passed on the surgeons watched carefully for signs of blood poisoning, fearing that the entire hand would have to be amputated to save the life of its possessor. These signs not appearing, the surgeon delayed operating, and after a time it began to mend, and finally healed entirely.

"Young man," said the surgeon to the patient, as the danger was passing away, "do you use alcohol in any form?"

"No sir."

"Do you use tobacco?"

"No sir."

With a wave of his hand, a nod of his head, the surgeon murmured.

"That is what has saved your hand."

—*Temperance Cause.*

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We would be one in hatred of all wrong,
One in our love of all things sweet and fair,
One with the joy that breaketh into song,
One with the grief that trembles into prayer.

One in the power that makes Thy children free
To follow Truth, and thus to follow Thee.

JOHN W. CHADWICK.

HYGIENE IN PUBLIC SCHOOLS

Report of the Committee on the Teaching of Hygiene in the Public Schools, presented to the American Academy of Medicine at its last annual meeting and published in the *Bulletin*, for June, 1905.

REFERENCE has been made before in these columns to the able report of the committee of three, Dr. H. C. Putnam, chairman, appointed by the American Academy of Medicine to investigate the teaching of hygiene in our public schools. We are glad this month to quote from this report somewhat more in detail.

A brief history of the present universal scientific temperance legislation in this country is first given, and well deserved tribute is paid to the Woman's Christian Temperance Unions throughout the country who, associated with "professional men and women of good standing in the law, the ministry, medicine, science, and education, have organized and directed public sentiment among the home-makers, the intelligent and law-abiding throughout the great territory of the United States, and in twenty years have accomplished the evolution of these laws to their present stage, and secured a fair degree of inforcement—a much more difficult task."

The committee traces the steps in the evolution of these laws towards "accuracy of expression, and addition of details to cover weak points through which the intention of previous laws had been evaded," and gives the chief points of each law. It calls attention to the fact that "these laws leave ample openings for other text-books, methods, teachings, to any interested in hygiene (including temperance for physiologic reasons) who *have the capacity* to take advantage of such openings to demonstrate better ideas."

Up to 1882, although there had been desultory attempts since the days of Horace Mann, little or no hygiene was taught even in high schools. The few attempts at teaching physiology and anatomy were looked upon with distrust by parents and teachers who considered this subject as embarassing and possibly dangerous to children. An examination of the books of those times explains in part why this was so, for there were no suitable elementary books, the four or five first prepared having proved "impossible," and the very few academic books being so overloaded with anatomy and technical terms as to be almost as bad.

The antagonistic attitude of parents and untrained teachers "maintained a vicious circle of inefficiency from which the first series of four graded volumes [the Pathfinder] was a radical departure to find a path by which the truths of science can be adapted to children's minds."

As to the physiologies of the present, the Committee states:

"It is probable that no other kind of text-book has evolved so rapidly to this degree of merit. It is certain that no other country has so good, and that the leading physicians and educators of England almost unanimously, and those of Germany and lesser governments, are urging the American teaching of hygiene and temperance on a physiologic basis."

The changes brought about in this evolution of text-books are clearly shown by a comparison of the best five "school" books in use twenty-two years ago with the "New Century Series."

"The alterations in content are consistent with our quarter century's progress in science and the art of teaching (*e. g.* Oslers "Practice of Medicine," 1892-1902.)

"In form we must admit that evolution is improvement. We note the light little volumes for little hands, the artistic illustrations appealing to childish interests; the clear type and its helpful arrangements in convenient sections of resumes, experiments, glossary, and index; all these features *graded to different ages*, and particularly complete in the high school volume.

"In order to secure freshness and variety in the various grades, the books of this series are written by different authors, but co-ordinated.

"Of the 262 pages of text in the high school volume, 127 pages are given to hygiene, 27 of them being for temperance instruction, while those previous to 1883 gave less than one-twelfth to hygiene, and no temperance matter. The characteristics of this presentation are its lucid style, simplicity, conformity to the latest discoveries in science, and the variety of illustrative experiments and practical points on daily hygiene.

"We can but admire the ability, judgment

and tact with which all, including temperance, for physiologic reasons, have been harmonized in this latest volume of the evolution.

"The elementary volumes are more experimental, being the product of but twenty years' effort, and are even more important since they reach nineteen-twentieths of the pupils—those from the social classes greatly needing knowledge of hygiene in their poor environment.

"Modern pedagogic methods are based upon the idea of the ascending spiral. Each branch essential to community living is introduced in the first year as far as the child can understand each. In successive years they are recurred to on a higher plane.

"The law has long recognized language, numbers, and physical environment as essentials —to which it now adds health. Thus every child, in whatever year compelled to leave school, has received to the extent of his capacity something of these four.

"The oral lesson book of this series, the first of its kind yet written, is a suggestive 'pathfinder' for a group of teachers who have had much difficulty in bringing science down to their pupils. As in this latest volume, so, unquestionably, the indorsed books thus far have initiated the majority of practical improvements.

"Of the excellent intermediate book, more than one-half is devoted to hygiene and all its teachings are based on rudimentary science."

The elementary "volume, with its minute and gross anatomy, its physiology and its hygiene as far as it goes, is correct—theoretically, scientifically, logically.

"In all the indorsed books and most others the ideal of a healthy, active, physical life as a basis for success and happiness is kept in the foreground.

"Before 1898 the superiority was clearly in favor of the indorsed books, . . . and it still continues that for average teachers and schools the series of four or five grades issued under indorsement are better adapted, more nearly complete, and more nearly on pedagogic lines.

"Indorsement, so far as it affects the quality of a book, means that three or more readers, well educated, specially trained by years of practice in criticism of school physiologies, students of the problems involved from teachers', pupils', authors', public and 'scientific temperance' view points, do systematically go over the volume, noting not only errors as to the nature and physiologic effects of alcohol, but also errors in English, indefiniteness, illogical statements, repetition, exaggeration, unnecessary difficulties, unsuitable words, inconsistencies, dogmatism instead of explanation, scientific inaccuracies, poor taste—chiefly in giving facts that seem simple to the author, but have unfortunate influences on children of certain ages. Undoubtedly some faults are overlooked, and readers, like authors, are fallible; but every editor can appreciate the advantage of such examination, as do many authors."

Through the courtesy of the New York State Central Committee, a year's subscription to the SCHOOL PHYSIOLOGY JOURNAL, beginning with January 1906, is being sent to all city superintendents, superintendents of villages with more than 50,000 population. and all superintendents and principals of graded schools in New York State. The New York State Central Committee is composed of representatives of churches, temperance, philanthropic and other organizations throughout the state, with Rev. Dr. Burrell, pastor of the Marble Collegiate Church, New York City, chairman, and Mr. Alfred L. Manierre, a lawyer of New York City, secretary and treasurer.

"Scatter thy wishes, and their arrows fall,
Broken and spent, beneath Fate's frowning wall;
Forge from their fragments one sharp spear of will—
The barriers frown, but thou shalt pierce them still!"

We should so live and labor in our time that what came to us as seed may go to the next generation as blossom, and what came to us as blossom may go to them as fruit. This is what we mean by progress.—HENRY WARD BEECHER.

TRIUMPHANT DEMOCRACY

BY EDWIN MARKHAM

What do we need to keep the nation whole,
To guard the pillars of the State? We need
The fine audacities of honest deed;
The homely old integrities of soul;

The swift temerities that take the part
Of outcast right—the wisdom of the heart;

Brave hopes that Mammon never can detain,
Nor sully with his gainless clutch for gain.

We need the Cromwell fire to make us feel
The common burden and the public trust
To be a thing as sacred and august
As the white vigil where the angels kneel.

We need the faith to go a path untrod,
The power to be alone and vote with God.

Grammar Lessons

FIFTH OR SIXTH YEAR

WHAT TO DO IN EMERGENCIES

THERE was a time, and not so very long ago, when both parents and children thought the study of physiology and hygiene ornamental rather than useful; consequently they were often uninterested even when not antagonistic. Fortunately, the growing appreciation of the fact that future usefulness and success depend largely upon physical soundness has changed this attitude.

A few lessons yearly, especially in country places where doctors and medicines are usually some distance away, should be devoted to emergencies. These may be the means of averting the serious or possibly fatal consequences of some accident. The teacher may begin by telling a true story of what was done in an emergency like the following:

OPIUM POISONING

A mischievous little girl named May found a bottle of paregoric and drank a part of it.

Her mother discovered almost at once what she had done, and knew that if prompt action were not taken her child would fall into a deep sleep and never wake up.

The doctor was miles away, and before he could arrive the poison would have done its work. The mother must save her life.

The first thing to be done was to get rid of the poison, so she gave the child a great deal of warm water with salt and mustard in it, and it soon brought up the poison.

But May was so little, and the poison was so powerful that it had already begun to take effect, so her mother gave her some strong coffee, for that is an antidote for any kind of opium poisoning. Even in spite of the antidote she fell into the deep sleep from which, if left alone, she would never awake.

Her mother wakened her, and for hours rubbed her hands and feet, made her walk, and even switched her with a whip to keep her from sleeping.

At last, with the help of the coffee, and the exercise to keep the blood circulating, the effects of the poison wore away. When the doctor came, he said May's mother had done just the right things to save her life, and that late in the evening she might be permitted to go to sleep.

Ask some pupil to reproduce the story.

What is the poison in paregoric? Explain that paregoric, laudanum, morphine, and morphia are all forms of opium.

Bring out the salient points of the treatment for opium poisoning, and have the pupils take notes in their notebooks.

Ask members in the class if they have known any similar cases of poisoning. What was done for the patient?

Point out that most soothing and cough syrups, many preparations for summer complaints, and also many headache tablets contain considerable quantities of opium in one form or another and may produce opium poisoning. Make the treatment for all kinds of opium poisoning clear, *i. e.*, emetic, antidote, continuous exercise to keep the blood circulating and to avoid the fatal lethargy.

Help the class to find the definition of a poison, and have it written upon the board. Ask them to mention as many poisons as they can. Classify them somewhat upon the board. Have the children take notes.

Make it clear that the general symptoms of poisoning are sudden nausea, dizziness and headache, and that in case poison is suspected it is wise to give an emetic, and call a doctor at once.

OTHER KINDS OF POISONS

When poison is known to have been taken, an emetic is always to be given *except* when the poison is an *acid* or an *alkali*.

Under acid poisons write nitric, sulphuric (oil of vitriol), oxalic and carbolic acids, and the appropriate antidote. No emetic.

Under alkali poisons write ammonia, caustic soda, potash, lye. Give antidotes. No emetic.

Under opiate poisons write paregoric, laudanum, opium, morphine, morphia, and many soothing or cough syrups, remedies for summer complaint, and headache powders or tablets. Emetic. Antidotes.

Miscellaneous poisons would include arsenic, Paris green, or rat poison, mercury, lead, matches, kerosene, aconite, belladonna, poisonous plants like toad-stools, wild parsley, and berries of the mountain ash.

Emetic. Antidotes.

Now develop the point that while we ordinarily think of a poison as a substance which may produce death quickly, there are other sub-

stances which though they may seem to act slowly are also poisons.

Speak of poisons which are cumulative in their effects, like arsenic, lead and alcohol, and show that when taken in small quantities it is their nature to injure health, and in large doses to destroy life. Mention some cases of acute alcoholic poisoning where death ensued quickly.

ALCOHOL A POISON

Point out the fact that alcohol may really be more dangerous than such poisons as arsenic and Paris green which the laws require to be labeled "Poison"; because people have thought it was good for food and medicine and almost always begin by taking a little in such attractive form as beer, wine, or cider.

They can not at first see the harm it does their bodies, and so they drink more and more till the harmful effects begin to become apparent, and then they often discover they have formed an uncontrollable appetite for it.

Other poisons have antidotes, but as Sir Frederick Treves, LL. D., Surgeon to King Edward says: "It [alcohol] is an insidious poison in that it produces effects which have only one antidote, alcohol again."

In speaking of alcoholic and other poisoning, the teacher must emphasize the idea of the ounce of prevention that is worth a pound of cure. Impress the children with the thought that they must never taste medicines when they do not know what they are; that many cases of poisoning come from carelessness in leaving poisons near medicine intended for internal use or where little children can get hold of them, and that all poisons should always be properly labeled and kept under lock and key.

COMMON ACCIDENTS

Ask the children to name as many common accidents as they can think of, and have these placed upon the board.

The list should include such things as fainting, frost bite, gun-shot wounds, snake or mad-dog bites, fits or convulsions, suffocation by strangling, or asphyxiation from illuminating gas or that in deep wells or mines, sprains, broken bones, burns, or scalds, person's clothing on fire, apparent drowning, sunstroke or heat stroke, wounds or bruises, bleeding from nose, veins, or arteries, foreign bodies in eyes, nose, ears, or throat, stings of bees, poisoning from nettles or poisonous plants, and any other which may occur to the teacher.

Have ready also a number of slips of paper upon which are written a list of accidents corresponding to those placed upon the board, and under each topic write briefly the details of a suppositious emergency of the sort indicated by the topic. For instance, two children are alone in the woods and one of them cuts a gash in his forearm from which the bright red blood comes in spurts. What must his companion do for the patient?

Allow the children to select one or more of the topics written upon the board and give to each the corresponding slip of details. Each one is then to learn from parents, family doctor, or books just what ought to be done with the means at hand in such a case and tell the class. They may write out their remedy similar to a prescription.

BLEEDING

If it is the case of bleeding mentioned above, the pupil must explain how he knows that this is arterial blood, and the way in which it can be stopped with the material at hand.

Bring out the point that in emergencies one seldom has all he needs, and must be able to make good the deficiency. In this case he may have to tear up clothing to get strips of cloth for a tourniquet or bandages. Let him demonstrate to the class the manner in which a tourniquet should be made and applied. Class compare his treatment with that given in their books.

The teacher should correct errors and help the class as to the best method.

In connection with bleeding, the teacher should explain that in no case of bleeding should alcoholic drinks be given, even if they are at hand, first, because many experiments show that alcohol is not a stimulant, and second, because by partly paralyzing the nerves that regulate the blood supply there is danger of increased bleeding.

The manner in which bandages should be applied and various other points will suggest themselves to the teacher as proper to be taught objectively.

DROWNING

If the topic is a case of supposed drowning or asphyxiation, pupils may illustrate artificial respiration.

BROKEN BONES

Where bones are supposed to be broken, and the patient must be moved, have the point brought out that the broken limb must be supported by some sort of improvised splints, which may be even canes or umbrellas, or pieces of wood of any kind, with soft wrappings such as folded garments or cushions.

GUNSHOT WOUNDS

In connection with gunshot wounds, ask the class to give instances of the sort, and by questions bring out the fact that most if not all of

these cases were due to carelessness, such as handling a gun supposed to be unloaded, pulling a gun after one in climbing a fence, allowing the gun to remain cocked, etc.

Explain the great danger from lockjaw to be feared in the case of contused wounds, especially those from the deadly toy pistol and sometimes from torpedoes.

NON-ALCOHOLIC REMEDIES

These lessons may very properly furnish the occasion for a general talk on the subject of substitutes for alcoholic medication.

An article in the London "Hospital" not long ago commented upon the fact that our grandfathers, lay and medical alike, regarded alcoholic liquors as the prime resource in cases of severe illness or injury. Even today the majority of householders look upon the brandy bottle as a fetish to charm away disease and death. The "Hospital" says this is a "monstrous superstition" which is slowly but none the less surely yielding to modern scientific knowledge.

First aid to the wounded

The article further says that yesterday shocks were supposed to be counteracted by brandy. Now it has been shown that to administer alcohol to the individual suffering from shock is to increase the danger to his life. Thirty years ago it was considered iniquitous to withhold alcohol from patients suffering from typhoid fever. Now, as Dr. Burns writes, the average mortality from this disease of cases treated in the London Temperance Hospital during thirty-three years was lower than in others where the old regime prevailed.

Alcohol has been used as a stimulant in cases of fainting and the like, but some experimental scientists of high reputation have shown that alcohol is not, as was formerly supposed, a stimulant ; that small quantities of alcohol do not have an appreciable effect on the heart, and that larger quantities act as a powerful depressant rather than as a stimulant.

Oliver Wendell Holmes once said that if all the drugs in the world were at the bottom of the sea, it would be better for the people but worse for the fishes.

Teach the children that such poisons as opiates, alcohol, and others should never be prescribed except by a physician, and that simple remedies, among which one of the most valuable is water, hot or cold, are better every way than drugs of any kind.

In case of faintness, the sipping of cold water is one of the best stimulants known. Hot water taken internally, and hot or cold fomentations applied externally are specifics for many disorders.

Hot milk, in which a little pepper may be placed if desirable, sipped (milk should never be drunk quickly), is a stimulant which furnishes nourishment as well.

To break up a cold, hot lemonade or hot cinnamon or pepper tea taken before retiring will answer every purpose better than the once almost universal "whiskey sling."

The teacher may mention these and such other simple substitutes for liquor as seem wise.

AUTHORITATIVE QUOTATIONS

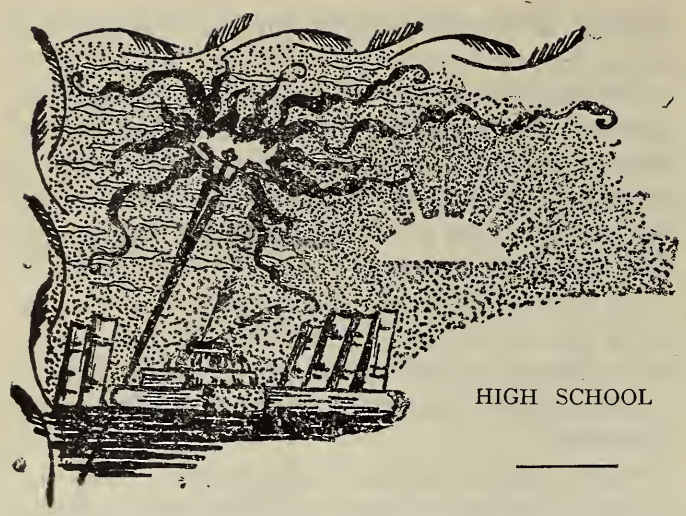
Alcohol is a virulent poison, and as such should be placed in the list with arsenic, mercury, and other dangerous drugs. ALFRED CARPENTER, M.D., University of London.

Alcohol is a poison. So is strychnine; so is arsenic ; so is opium. (It ranks with these agents) Health is always in some way or other injured by it ; benefited - never. SIR ANDREW CLARK, M. D.

Alcoholic poisoning is responsible for more disease than any other single cause.—A. STRUMPELL, M. D., Berlin.

If we were to include in one list the deaths directly due to chronic as well as acute poisoning by alcohol, it would stand first of all poisons in frequency.—WYNTER BLYTH on "*Poisons.*"

The custom of placing alcohol among the so-called stimulants instead of grouping it with what we now know as narcotics, has tended to perpetuate misleading views regarding its therapeutic (curative) value.—T. N. KELYNACK, M. D.



HIGH SCHOOL

THE DESTRUCTIVE ROLE OF ALCOHOL

IN preparing for this subject, the teacher should carefully review the formation and structure of cells and tissues as such. She should also go carefully over the chapters on formation of habit, in some good work on psychology, in order that she may be prepared to throw fresh light on this complex but very interesting and important question.

In taking up the subject with the class, read and discuss with them the following quotation from the text-book on Psychology by Professor James of Harvard:

"Sow a Habit—Reap a Character.

"Could the young but realize how soon they will become mere walking bundles of habits, they would give more heed to their conduct while in the plastic state.

"Every smallest stroke of virtue or vice leaves its scar. The drunken Rip Van Winkle in Jefferson's play excuses himself for every fresh dereliction by saying, 'I won't count this time.'

"Well, he may not count it, and a kind heaven may not count it, but it is being counted none the less. Down among the nerve-cells and fibres the molecules are counting it, registering and storing it up, to be used against him when the next temptation comes. Nothing we ever do is, in strict scientific literalness, wiped out.

"Of course, this has its good side as well as its bad one. As we become permanent drunkards by so many separate drinks, so we become saints in the moral, and authorities and experts in the practical and scientific spheres, by so many separate acts and hours of work."

Ask the class why youth must be even more careful than adults about the daily acts of life.

When are habits most easily formed? Why?

What danger in the oft repeated promise, "I will do better next time?"

What beneficent results will follow the formation of good habits in youth?

After a short discussion of these topics, take up the

ORIGIN OF ALCOHOL

Review the subject of fermentation.

If possible, obtain a good magnifying glass and let the class observe the different forms of moulds. A glass of 1-6 or 1-8 inch size will show yeast plants.

Ask what useful purpose in nature fermentation serves.

What are organized ferments? Have some of the forms of organized ferments described in class.

What are the most common examples of fermentation?

What chemical changes take place in the fermentation of bread? of wine, beer, or cider?

The brewers are advertising beer as a pure food and liquid bread.

Ask two members of the class to prepare short arguments, one trying to show that the position of the brewers can be maintained and the other that it can not, and let other members of the class speak for one or two minutes on the subject.

Let them quote from books, and any authorities they can find in support of their respective positions.

Sift the evidence, and help the pupils to see the difference between the evidence of special pleaders and obscure and doubtful authorities, and those of the highest rank in the medical and scientific world.

Lead them always to examine the standing of any man who claims to be an authority. Show that the authorities quoted by the brewers and distillers in newspaper articles and elsewhere do not rank among real scientists, the testimony of whom is always to prove that the amount of food compared to the whole bulk in beer and other liquors is infinitesimally small, that even this is overbalanced by the alcohol, and that these are poisonous beverages, the nature of which is to destroy health and life.

Why is fermented or leavened bread good while fermented drinks are harmful?

Emphasize the point that fermentation entirely changes the nature of foods like grapes, barley, and apples. For instance, wine is no more like grapes that rotten apples are like sound ones.

THE NATURE OF ALCOHOL

In taking up this part of the subject it will be very interesting and profitable to discuss the nature of alcohol under two heads, namely, what it has been supposed to be and what it really is.

To this end, question the class as to the various medical and food properties alcohol has been thought to possess, and write them upon the board.

These should include the "elixir of life," under which topic the discovery of distillation of alcohol by alchemists several hundred years ago may fall, and the following fallacies: alcohol is necessary to keep out cold; to ward off the effects of excessive heat; to give muscular strength; to quicken the wits; to prevent disease; it is the "milk of old age"; a "whiskey sling" breaks up colds and fevers; wine, beer, and cider are appetizers and aid digestion; evil results of alcoholism are due to adulterations; alcohol is a food because it may be partly oxidized in the body; it is good to decrease fatigue and with meals after the day's work is done; it is a real and valuable stimulant.

Let different pupils be prepared to show from books and different sources why each of these statements is a misconception of the nature of alcohol, and then tell what is really true in each of these cases.

Alcohol is a narcotic the nature of which is to effect harmful changes in the nervous system as well as other parts of the body, and to lead to a craving for itself which the drinker may not be able to resist.

Let some pupil be prepared to show that the ethyl alcohol of distilled liquors is exactly the same as that in fermented liquors, the quantity greater but the *quality* unchanged.

"If I may choose and call you mine,
You are every day my Valentine."

Show how alcohol produces a transitory feeling of exhilaration which is soon followed by relaxation. The person then takes more to relieve this feeling, and little by little the doses must be increased to produce the feeling of energy. After a time, the system becomes relaxed and the man is dependent upon the liquor to spur his jaded powers. When he uses larger quantities, he discovers it is affecting both his mind and his body, but he can seldom stop, for the will has been affected and is no longer capable of asserting its mastery.

EFFECTS OF ALCOHOL ON TISSUES AND CELLS

Review cells, cell growth, and tissues, paying special attention to nerve and muscular tissue.

Consider this topic under three heads, namely,

Effects of alcohol upon
- The growth and development of the child,
- The health and working power of adults,
- The character of persons of all ages.

Compare cell and tissue growth of plants with that of animals, including man.

Explain the effect of alcohol, even when greatly diluted, upon the growth of plant cells and tissues.

Show that the results on human tissues are very comparable to those on plants. Since all growth comes from the healthy development of cells, what must needs be the result of alcoholic beverages and narcotics on children?

Make it clear that childhood and youth are the time set apart by nature for the growth of the body to its permanent form and size, and that if this development is hindered by lack of proper food, or by the use of poisonous substances, the result will be weakness of the organs or permanent deformity.

What are the effects of alcohol upon the brain and nervous system of an adult? What, then, must be the results upon the output of constructive mental work?

What is the explanation of the trembling hands and limbs of users of liquors? How is a man's ability to do work requiring skilful manipulation and fine muscular sense affected by these narcotics?

What are the results of drinking on the special senses, sight, hearing, and taste?

Why do many railroad and other business corporations prohibit the use of liquors by their employes?

Note that it is not only the tippler's brains that are befogged, and the keenness of his senses to discover and avert danger greatly lessened, but the frequent yielding to temptation has relaxed his will power, blunted his moral vision and made him in every way an unreliable person.

Point out that, other things being equal, there is no position, even that of bar-tender, where

an abstainer will not be given the preference over even a moderate drinker.

Show that self-control and judgment are among the fundamental attributes of character and the latest to be acquired, but that they are the first to be impaired by tippling habits.

AUTHORITATIVE QUOTATIONS

Dr. Lorenz, the distinguished European surgeon says:

"I am a surgeon. My success depends on having a clear brain, a steady nerve, and a firm muscle. No one can take any form of alcohol without blunting these physical powers; therefore, as a surgeon I must not use any form of spirits."

Alcohol diminishes the keenness of the moral sense; it blunts the sharpness of discrimination between right and wrong, and it impairs the will power, the power to do the right, and easily leads its victims to a vicious life.—Daniel H. Brower, M. D., LL. D., Rush Medical College.

The craving for alcohol is not a natural appetite; it is not a demand set up by the tissues of the body for a new supply of the material needed for construction or repair. Enough food to supply this demand satisfies, more causes satiety; but the craving for alcohol increases with its supply."—H. Newell Martin, M. D., Late Professor of Biology, Johns Hopkins University.

Alcohol exerts an exceedingly deleterious action on rapidly growing tissues, interfering with their nutrition and preventing the development of their proper function. In old age, when the tissues are on the down grade and are subject to various degenerations, alcohol in most cases merely accelerates the process of decay. —G. Sims Woodhead, M. D., Professor of Pathology, Cambridge University, England.

All alcohol, and all things of an alcoholic nature, injure the nerve tissues *pro tempore*, if not altogether, and are certainly deleterious to the health. I think there is a great deal of injury being done by the use of alcohol in what is supposed by the consumer to be a most moderate quantity. It leads to degeneration of the tissues; it injures the intellect. In those effects which stop short of drunkenness, I should say from my experience that alcohol is the most destructive agent we are aware of in this country.—Sir Wm. Gull, M. D., F. R. S., London.

Dr. Forbes Robertson, the well-known neuropathologist, graphically, but with much scientific accuracy, likens the effects of an alcoholic debauch upon the nerve cells of the brain to the action of a storm sweeping over a great forest. Every tree bends and struggles to ward off the attack. And when the hurricane is over the woodland looks but little changed when viewed afar. But a near approach reveals the ground covered with broken branches, and here and there a giant or a sapling uprooted and destroyed. In like manner irreparable damage may be wrought in the forest of the nerve cells of the human brain by alcohol.—T.N. Kelynack, M. D., in *Medical Temperance Review.*

BOOK NOTICES

New Anti-Saloon Songs. By E. S. Lorenz. Lorenz Publishing Co., New York. Limp cloth, 20 cents postpaid. Full cloth, 25 cents postpaid.

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The touches of English life are pretty, and the descriptions of conditions in Terra Del Fuego are interesting because so unfamiliar to most readers.

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Primary—Parts of the Body used in Work and Play: Hands, Fingers, Thumbs. Sense of Taste. Cigarettes. Nerves of Sensation and Motion.

Intermediate—Nervous System. Bandages for Cuts. Treatment in Case of Accidents. Characteristics of a complete Food. Alcohol not a Food.

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The School Physiology Journal

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MARY H. HUNT, EDITOR

VOL. XV. NO. 7
MARCH, 1906.

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School Physiology Journal

Vol. XV *BOSTON, MARCH, 1906* *No. 7*

THE MORNING SUMMONS

BY RICHARD BURTON

WHEN the mist is on the river, and the haze is on the hills,
And the promise of the springtime all the ample heaven fills;
When the shy things in the wood haunts and the hardy on the plains
Catch up heart and feel a leaping life through winter's sluggish veins:

Then the summons of the morning like a bugle moves the blood,
Then the soul of man grows larger, like a flower from the bud;
For the hope of high endeavor is a cordial half divine,
And the banner cry of Onward calls the laggards into line.

There is glamour of the moonlight when the stars rain peace below.
But the stir and smell of morning is a better thing to know.
While the night is hushed and holden and transpierced by dreamy song,
Lo, the dawn brings dew and fire and the rapture of the strong.

ALCOHOL AND THE DOCTORS

BY C. W. SALEEBY, M. D.

THE Bishop of London is reported to have said, the other day, that the most hopeful factor in the campaign against alcohol is the conversion of the doctors, and those of us who realize the increasing weight of medical opinion may agree.

This year at Buda-Pesth witnessed the tenth international Anti-Alcohol Congress, and the savants of all nations who there assembled may take heart of grace from certain recent events.

For instance, the pioneer town of Gateshead is shortly to be placarded with statements of a few facts concerning alcohol; temperance is to be taught in our schools—a generation too late. London lately witnessed a meeting of doctors, presided over by the King's physician, who met in scientific conclave against alcohol; and an American society has sent Sir William Broadbent its compliments in celebration of the circumstance that the children of this country are shortly to be taught a few of the facts which are not hidden from the twenty-two millions of children of school age in the United States.

Plainly we have travelled since the day, some sixty years ago, when the first teetotal doctor was looked upon as a unique dangerous lunatic.

The intimacy of the relation between alcohol and insanity has been commented upon in the official report recently published; and to any one familiar with modern text-books upon clinical medicine, toxicology, pharmacology, dietetics, therapeutics, criminology, pathology and several other sciences, it must appear as one of the most significant indictments of the human intellect that, half a century ago, alcohol was actually asserted to be necessary for health.

Since humanity first appeared upon the earth till this morning—say for a quarter of a million years—there has never been any kind of evidence or proof or presumption or probability of that assertion, yet it was believed.

So much for the notion that human beliefs are determined by evidence.

We see now that the doctors of half a century ago were wrong, and egregiously wrong, upon every specific point connected with the properties of alcohol.

There was no clincal thermometer in those days, so that the temperature of the body was estimated by the subjective sensations of its owner. Hence, alcohol was supposed to keep one warm, to "keep out the cold."

Yet, in whatever dose, dilution, or combination administered, alcohol never yet raised the temperature of any warm-blooded organism. It lowers the temperature by increasing the stability of the compound which the inbreathed oxygen forms with the red coloring matter of the blood, thus retarding tissue combustion, and by throwing much warm blood to the surface where it is cooled.

Also, alcohol was regarded as essentially a nervous stimulant. Yet alcohol has been conclusively proved to retard mental processes in the healthy subject; this by rigidly conducted and confirmed experiments in many laboratories. Again the paradox is due to the misinterpretation of subjective sensations.

Alcohol has also been acclaimed as a stimulant of the digestion and appetite; yet any modern text-book on pharmacology will inform you that alcohol arrests digestion in measure proportionate to its concentration, and destroys appetite. Here the drug has been credited with the properties of its aromatic or bitter accompaniments, and so forth.

The series of contrasts between what is now known concerning this drug, and what the doctors of half a century ago believed concerning it, might be almost indefinitely prolonged.

A short time ago some fifteen thousand of us made a formal recantation, in the shape of an unprecedented petition to the educational authorities, of the mistaken views held by our predecessors.

I take it no one will suggest that the crank s a species so abundant as to number fifteen thousand amongst the doctors alone of these islands. But, of course, doctors are always "on the make"—and the idea may be to create a prejudice in the public mind against a valuable food and beverage, thus giving the doctor more work to do. If both these somewhat difficult hypotheses be rejected, there remains none more probable than that alcohol has been found out. And the question remains, What is to be done about it?

As to the validity of my indictment no competent and disinterested person will be found to dispute; but as to the plan of campaign the case is different. Medical unanimity there is none whatever.

Indeed, our differences of opinion are violent and irreconcilable. Readers of the recent discussion which I opened in the *Morning Post*, upon a brilliant and striking article of Dr. Archdall Reid's, may remember that he and some other medical men are inclined to the view that the race will never become sober until its susceptible strains have drunk themselves to death.

All our restrictive devices, says Dr. Reid, are wrong, and likely to be disastrous. England can become sober, as the Mediterranean peoples are sober, only by full exposure to alcohol, and elimination in course of ages of all amenable to its fatal charm. Dr. Reid has taught me most of what I know concerning heredity, but to this contention I can not subscribe.

The Commissioners in Luancy have told us in their latest report that alcohol is related to some one in five of all cases of insanity. Most medical men would agree that this is a very moderate estimate, and it certainly falls below the figure given by Dr. Clouston, of Edinburgh, one of the first authorities in the world.

We may take it, then, that the relation extends to certainly not less than one case in five. In a large proportion of cases added to these, alcohol plays a contributing if subsidiary part; this even if we ignore the relation of the drug to those passions which, directly or indirectly, lead to so much insanity.

It is certainly true, as the Commissioners observe, that weakness of mind may lead to alcoholism; but to interpret this fact as tantamount to "giving away" the whole case against alcohol is an absurdity only to be perpetrated by those who have a sufficiently obvious end to serve.

There are only too many cases where a mental instability, which would otherwise never have led to actual insanity, has ended therein by means of alcohol. There is established a vicious circle, of which alcohol is an essential part.

It can not be too frequently emphasized that heredity supplies only potentialities or tendencies, and that only by the action of a suitable invironment, *e. g.*, alcohol, can these be realized. When this fact is understood we shall hear less of the abominable and utterly unscientific cant which would refer all human ills to an inevitable inheritance.—*Littell's Living Age.*

THE COMING OF THE SPRING

BY NORA PERRY

THERE'S something in the air
That's new and sweet and rare—
A scent of summer things,
A whir as if of wings.

There's something, too, that's new
In the color of the blue
That's in the morning sky,
Before the sun is high.

And though on plain and hill
'Tis winter, winter still,
There's something seems to say
That winter's had its day.

And all this changing tint,
This whispering stir and hint
Of bud and bloom and wing,
Is the coming of the spring.

And tomorrow or today
The brooks will break away
From their icy, frozen sleep,
And run, and laugh, and leap.

And the tassels soft and fine
Of the hazel will entwine,
And the elder branches show
Their buds against the snow.

So, silently but swift,
Above the wintry drift,
The long days gain and gain,
Until, on hill and plain,—

Once more, and yet once more,
Returning as before,
We see the bloom of birth
Make young again the earth.

Primary Lessons

FIRST YEAR

FOOD

THERE is no subject upon which more widespread ignorance has prevailed than that of proper food for children. Inquiry in many schools will disclose the fact that some children have come without breakfast, and that others have eaten things which would tax the digestion of a man who labored in the open air all day.

Many little ones are allowed to eat candy and cakes freely between meals. Such practice is sure to take away the desire for wholesome food and to upset the stomach. Instead, they should be given a small amount of sweets at the close of a meal.

Care must be taken even then that the candy be pure. The kind purchased by the child for a penny is often injurious.

Another bad practice, that is too common, is that of allowing children to drink coffee, tea, and even beer. The teacher should try in every way to discourage the drinking of these beverages. A glass of milk contains far more nutriment and lacks the injurious qualities.

ANIMALS' NEED OF FOOD

Mark had a rabbit that he was very fond of.

He found a nice place to keep it behind the barn, and his father helped him to build a fence of wire net, so that bunny could not run away.

His father told him to give bunny a drink of fresh water every day, and plenty of green leaves.

For a time all went well. Mark gave the rabbit plenty to eat.

But after a few weeks he grew forgetful. Once a day was as often as the rabbit had any food, and sometimes Mark did not remember to feed him at all.

One night, after Mark had had his rabbit about two months, his father said,

"Well, Mark, how is bunny getting on?"

Mark looked frightened.

"Oh, I have forgotten to feed him for three or four days," he said.

He ran to the rabbit-yard. There lay poor bunny, dead, with nothing to eat in sight.

What made Mark's rabbit die?

Does every animal have to eat? What will happen if it can not get food?

We know that all animals have to eat or they would die. When do they eat?

An animal seeks food only when it is hungry. How much does an animal eat? Only as much as it needs.

If it should eat a great deal more than it needed, what would happen? It would be sick.

After the dog or cat has eaten all it wants, what does it do?

Does it run and play, or does it keep still? It keeps quiet till its food has a chance to digest.

PLANTS' NEED OF FOOD

Do flowers need food? Where do they get it?

What would happen to seeds that were planted in sawdust, and had no earth for food?

PEOPLE'S NEED OF FOOD

Do people need food? What happens to them if they can not get anything to eat?

WHAT TO EAT

When do boys and girls need to eat?

What kind of food tastes good when you are hungry?

Bread and milk, bread and butter, and fruit are much better for you than cake, pie, or candy.

How much should you eat?

When you have had enough, do not eat more just because it tastes good.

Too much may make you sick.

When you have been running, and are hot and tired, you should rest a little while before you eat your dinner.

You will feel more like eating it after five or ten minutes' rest.

What do the dog and cat do after they have eaten?

Why is it good for boys and girls to rest awhile after eating?

You should not play tag, nor run and jump for at least a half hour after dinner.

SENTENCES

We eat when we are hungry.

We drink when we are thirsty.

Cool water and fresh milk are good to drink.

We should not eat too much.

GUESSING GAME

I am thinking of something good to eat.

It is round, red, and tastes sweet.
What is it?
An apple.
I am thinking of something good to drink.
It is white.
What is it?
Milk.

WHAT TO DRINK

We need something else besides food. What is it?

We need something to drink.

What kinds of drink can you think of?

Water, milk, cocoa, tea, coffee, beer.

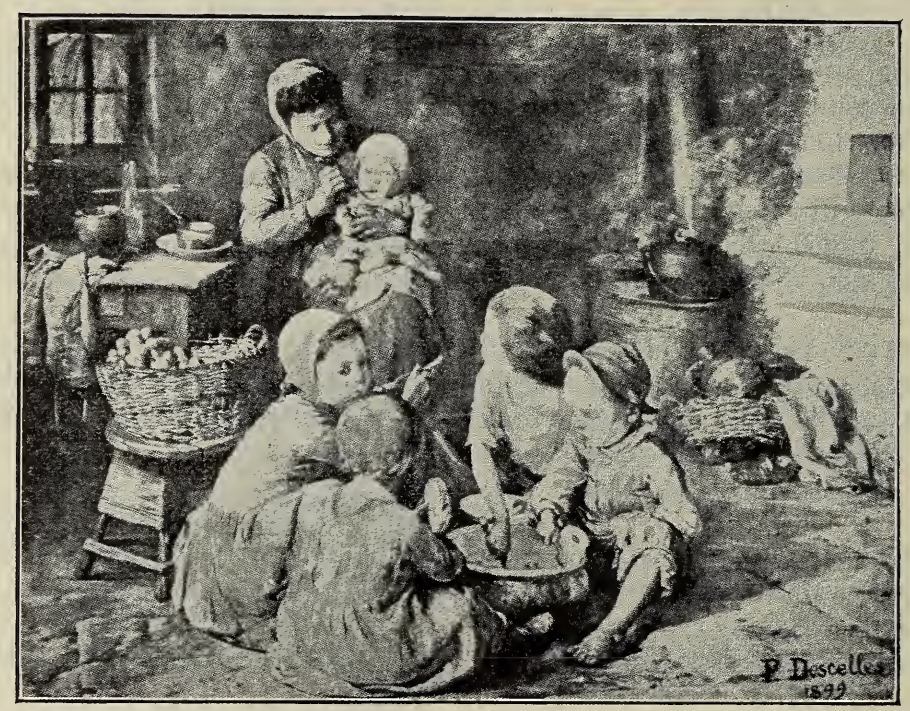
The first three are good for you, but the others are not.

STORY OF CARL

Let me tell you a story of a little boy who drank one of the bad drinks.

Carl's father was dead and his mother had to go out to work every day.

When Carl went home from school at noon, his mother was not there to get his dinner, so Carl had to get his own.



Carl had a good dinner with his little playmates.

The little boy earned some money selling papers every day.

Because he had seen some men drinking beer with their dinners at noon he thought he would have some.

He spent five cents for a mug of beer, and took it home to drink, while he ate the bread and sausage which he found in the pantry.

After awhile he liked the beer better than the bread and sausage.

Carl had always been a strong, healthy boy, and as bright and pleasant as could be. But before long the teacher noticed that he seemed sleepy and stupid in the afternoon.

He lost the roses from his cheeks and seemed sickly and fretful.

One day the teacher found out that Carl's mother was away from home all day.

She called Carl to her and asked what he had for dinner.

He told her about the beer.

The teacher knew then why Carl had changed. She told him that beer may make a boy dull, and keep him from growing tall and strong.

Carl promised that he would not drink any more beer.

The teacher arranged with the mother of one of her other pupils to give Carl a good dinner and a big glass of milk to drink every day.

It was not long before Carl became strong and pleasant again and was able to get his lessons.

But never again did he taste beer.

SENTENCES

We eat many kinds of food.

Rich food is not good for us.

We have potato and meat for dinner.

I have bread and milk for my supper.

Beer is a bad drink.

DRAWING LESSON

Let us draw some of the fruit and vegetables of which we are fond.

Let us first draw a vegetable which we eat with meat. What is it?

Show a potato and draw.

After this draw some kind of fruit—an apple or orange.

AUTHORITATIVE QUOTATIONS

ALCOHOL IS NOT A FOOD

Alcohol is not a food. It makes neither bone, brain, blood, or muscle. On the contrary it acts as a poison and an irritant.—V. N. Rutherford, M. A.

BEER AND WINE ARE NOT FOODS

Grain and grapes are nourishing, but beer and wine are not. The useful elements have disappeared; they have been partially transformed into alcohol. Beer is not "liquid bread." If it is agreeable to the drinker, it is because it contains the alcohol to which he is accustomed. —Dr. Bienfait of Liege.

FOOD

SECOND YEAR

EARLY knowledge of what food does for the body is necessary, that the child may choose what is best for his body, instead of eating only for the momentary gratification of his sense of taste.

FOOD OF ANIMALS

Do animals go to bed early or late? What is the first thing they try to get after waking?

Please tell me a few things that animals eat.

Why does the farmer give his animals only wholesome foods? Why should you eat only wholesome foods?

FOODS FOR CHILDREN

Tell me what you like to eat. (Write the list on the board.) If an unwholesome food is mentioned, pass it by. Speak of the special value of each food. If candy is suggested, write "pure candy." Suggest that the children make molasses candy at home, or buy the variety known as Christmas candy.

The best time to eat candy is after the noon meal. Only a few pieces should be eaten at one time.

FOODS FOR EACH MEAL

Some foods are better suited for breakfast, others for dinner, others for supper.

Fresh, ripe fruit is good for me to eat,

We will play we are going to get breakfast for a family. You may tell me what we shall give them. (Write two breakfast menus on the board.)

What shall we give them for dinner? (Write two dinner menus.)

What shall we give them for supper? (Write two supper menus.)

We should eat less meat in summer than in winter. Once a day in summer is often enough for most people. One should eat less hearty food at night than earlier in the day.

MODERATION IN EATING

In order to be strong, we need to eat enough but not too much food.

How do we know when we have eaten enough? Sometimes mother knows better than we do.

A very good rule is to leave the table when you can still eat a little more. In a very few minutes you will feel that you have had enough.

CHEWING THE FOOD

If you were working as fast as you could, would you like to have some one urge you to work faster? That is what you are doing to your stomach when you eat fast. You make the stomach work faster than it ought.

We need to chew our food thoroughly.

THINGS TO REMEMBER

Our bodies need food to make them grow.

We should give them healthful food.

We should not make the stomach work too hard.

We should eat slowly.

FOOD REPAIRS THE BODY

Animals know what is good for them. Do children always know? Who can tell them?

You learned a little while ago that tools wear out with use, but that your body lasts as long as you live.

This is because it is always being repaired. Each little bit of worn-out matter is carried away and a new bit comes to take its place.

Suppose you had a sled given you at Christmas; a very good sled, but after you had used it for some time it should need new runners. Would you choose strong wood and iron, or that which would be likely to break?

If your mother needed to put a new sleeve in your coat, would she use poor cloth?

INDIGESTIBLE FOODS

If you give your bodies unwholesome food you will make them weak. (Before giving this lesson, if possible, have a ripe and an unripe apple, a raw and a baked potato passed from child to child, asking them to look for differences between the ripe and unripe, cooked and uncooked specimens.)

Which does your stomach like the better, the ripe or unripe apple? The raw or baked potato?

It would have hard work to make use of the unripe apple or the raw potato.

Do you think pickles are very good for the stomach? Why not?

Why is orange peel not good for it?

I will tell you why heavy bread and cake are not good for the stomach. (Be sure that the children know what heavy bread is.) Heavy bread and cake are like glue in the stomach. It can not separate them into small bits easily. It gets tired trying to do this, and you feel tired, too.

Unripe nuts make the stomach work too hard.

If you go into the country to gather nuts, you should not eat them while they are green.

A man would not give his horse or cow such hard food that the animal's stomach could not use it.

You are treating your stomach badly when you give it green apples or any hard, tough food. The stomach can not easily take care of such things.

They can not make you strong and well.

Sometimes they make you sick, or you have the stomach ache.

Your stomach is friendly to you when this happens. It is all the way it has of saying, "Do not give me that kind of food again."

The stomach needs some sugar, but oftentimes children and even grown people give it too much.

Is it well to eat candy early in the morning? When is the best time?

Cheap candy often looks pretty when you see it in the window, the colors are so bright. The people who make it try to have it look pretty. They know every one likes bright colors, and they think if their candy looks pretty it will sell.

Candy that is very bright colored is usually made of cheap, unwholesome things. That is why you can get so much for a little money.

BLACKBOARD LIST OF FOODS

I have made a long list of foods on the board. I have drawn a waste-basket, too.

We will erase the unwholesome foods and put them in the waste-basket. (Let the children vote under your direction regarding the value of each. Have candy and cheap candy written in the list, ripe apples and unripe apples, etc.)

THINGS TO REMEMBER

Unwholesome food will not help make me grow.

Animals do not eat unwholesome food.

Green nuts and unripe fruits are unwholesome.

Too much candy and cake are unwholesome.

AUTHORITATIVE QUOTATIONS

WHAT FOOD DOES FOR THE BODY

The processes of life in the body have the following divisions: first, the governing portion, the brain; second, the executive portion, the muscular system; third, the fuel portion, which keeps up the supply of heat, the source of all activity and motion.

Food must supply these three great divisions (vitality, strength, and heat) of the process of life in the proper proportion, or something will soon go wrong, though nature allows a wide margin.—*Journal American Medical Association.*

DEFINITION OF A FOOD

A food is any material substance which, when taken into the body, will supply the needs of the body for that particular substance without injury to the structure or functions of the body.—John Madden, M. D.

ALCOHOL NOT A FOOD

The work of experimental science has conclusively demonstrated that when alcohol is drunk in quantities sufficient to produce any noticeable effect, both physical and mental capabilities are decreased.

If alcohol were substituted for the necessary fat and carbohydrate food, to give heat to the body, the quantity containing the heat equivalent of the fat and carbohydrate food would speedily produce fatal alcohol poisoning. Alcohol, therefore, can not be considered a food. —John Madden, M. D.

SPICES AND CONDIMENTS UNSUITABLE FOR CHILDREN

Children who use spices and condiments are more likely to become addicted to alcohol and drugs than those whose diet is devoid of those stimulants.—*Alkalodial Clinic.*

I heard the bluebird singing
To robin in the tree.
"Cold winter now is over
And spring has come," said he;

'Tis time for flowers to rouse from sleep,
And from their downy blankets peep;

So wake, wake, little flowers,
Wake, for winter is o'er,
Wake, wake, wake,
The spring has come once more.

—Helen C. Bacon.

FOOD

THIRD YEAR

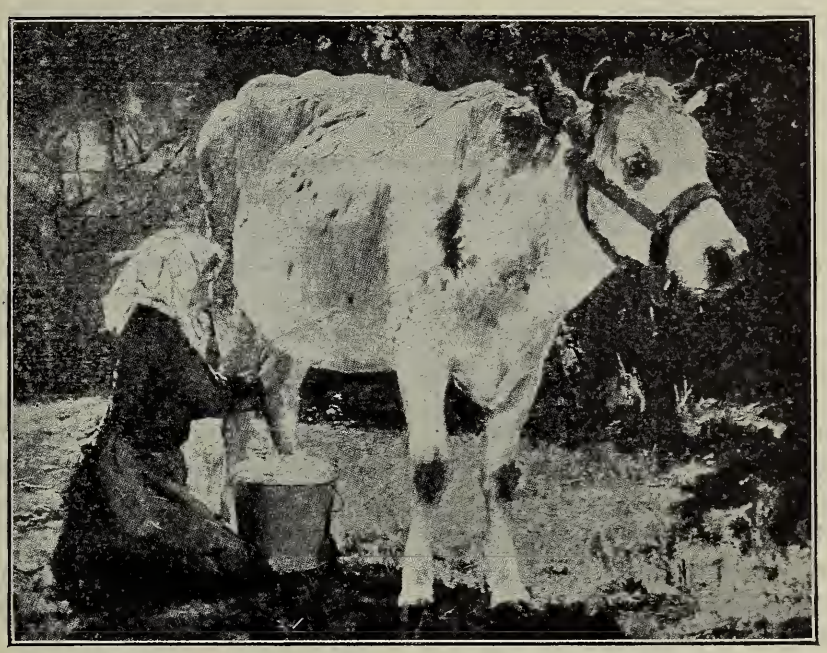
NAPOLEON is said to have lost one of his greatest battles from an attack of indigestion. If the teacher could know the facts, it is probable that she would find a poorly cooked or hastily eaten breakfast the cause of many a school failure.

In the upper grades of many schools cooking is now taught as thoroughly as any other science, and with gratifying results; but bad habits in eating and drinking may be formed in the earliest years of child life unless the primary teacher solves the problem of their prevention.

Tactful suggestion to the parent as opportunity offers may do something to improve matters, but the more hopeful side of the work is with the little ones themselves.

The desire to grow tall and rong, to surpass one's mates on the playground is part of the child's nature. We have only to show the relation of food to strength and growth to arouse his interest in these matters and get his co-operation.

Suggestion. Measure heights of the children at recess, a few each day. Measure again a few months later and let each child estimate how much he has grown.



Rich, creamy milk for every child to drink.

FOODS NEEDED FOR GROWTH

How many boys have ridden on a grocery wagon? How many girls have watched the grocer's man go from house to house?

What did he leave?

Is there any home that never gets food?

What part of your body receives the food after you swallow it? The stomach digests the food that you swallow, that is, it makes it so fine and so soft that the particles can be carried to all parts of your bodies.

Different parts of our bodies need different kinds of food. If we give those kinds to the stomach, the food each part needs is carried to it.

Is your body as small as it was a year ago? Why not?

What three things have made it grow?

We will talk about food today.

Please tell me what foods you think will make you grow, and I will write the list on the board.

Get from the children meat, eggs, fish, and milk. If other articles are named, tell them we will use them in another group.

FOODS NEEDED FOR WARMTH

When it is cold you wear thick clothing. Does it make your body warm? No, your body is made warm by the heat inside it.

When you wear thick clothing, less heat can escape than when you wear thin clothing. Since most children believe that the *clothes* they wear make them warm or cool, it would be well to ask if clothing would make a stone warm.

What does your overcoat do for you in winter? Does it make you warm, or keep you warm?

Why do you wear a thin waist in snmmer?

If we wish to warm a room what do we do?

Certain kinds of food make heat in the body. Please name them.

(Get potatoes, oatmeal, bread, butter, cake, etc., from the class.)

FOODS NEEDED FOR MOISTURE

We need watery foods also; what are they?

(Find what fruits are attainable in your locality, and make a list.)

When we eat shall our meal be wholly of the foods that will make us grow larger?

Shall it be wholly of those that make heat?

Shall it be wholly watery foods?

We need some of each kind every day.

Today we will talk about the most wholesome kinds of food.

Last year you learned what foods animals eat.

If you were to have a pet animal, which would you rather have, a healthy or a sick one?

What should you do to keep it well?

What should you give your canary bird?

Do you know what would happen if you gave it salt? We need salt, but it kills a canary.

What should you give your cat? your dog? your rabbit?

ANIMALS REFUSE HARMFUL DRINKS

If you should offer an animal beer or any drink containing alcohol, would he take it?

Why will he not take it?

Animals do not care for harmful foods or drinks.

If you had a horse and wished him to do a great deal of work each day, would you give him helpful or harmful foods?

It is just as necessary that we should have only helpful foods.

At our next lesson I shall ask each of you to play you are going to order the breakfast, dinner, and supper for the next day, and write the list for me. You may think between now and then what you will write.

THINGS TO REMEMBER

We need food to make the body grow.

We need food to give us warmth.

We need food to keep the body in repair. (Explain.)

We need watery foods.

WHY NOT DRINK ALCOHOLIC LIQUORS

ANSWERS OF SCIENCE TO THIS QUESTION

WHAT IS THE HARM IN A GLASS OF BEER

It is just this precious beer which lowers among thousands and thousands intellectual capacity and will power, and makes them old before their time; ruins stomach, liver, heart, and brain; and brings them into the poorhouse and prison, hospital and asylum, and early puts them under the earth.—MAX GRUBER, M. D., President Royal Institute of Hygiene, Munich.

Even the moderate quantity of alcohol contained in a glass of wine or a pint of German beer is sufficient to paralyze, retard, or diminish brain functions.—AUGUST FOREL, M. D., Professor of Psychiatry, University of Zurich.

DRINK DIMINISHES MONEY-EARNING POWER

Every dose of alcohol, even the most moderate, diminishes strength. All that man asserts of the strengthening effects of alcohol is a delusion. The well known poor man's glass during working hours is beyond question injurious. Every penny which the workman spends for alcoholic drinks is not only wasted but employed for a destructive purpose.—ADOLF FICK, M. D., Professor of Physiology, University of Wurzburg.

The bad effect of alcohol on persons performing muscular work is well known. The evidence is overwhelming that alcohol in small amounts has a most harmful effect on voluntary muscular work.—VICTOR HORSLEY, M. D., F. R. S., Professor of Clinical Chirurgy, University College, London.

DRINKING AN INFRINGEMENT OF THE CHILD'S RIGHT TO BE WELL BORN

The children of drinking parents do not inherit a healthy nervous system, but one more or less disordered.—ADOLF FRICK, M. D., University of Zurich.

Out of 10,000 children examined, only 4 % of those free from hereditary alcoholic taint were dullards, and only 18 % suffered from any organic disease; while of those with hereditary alcoholic taint 77 % were dullards, 30 % were very deficient, and 70 % suffered from organic disease.—T. A. MACNICHOLL, M. D., New York City.

ALCOHOL INJURES HEALTH AND SHORTENS LIFE

Liabilities to sickness are greater among drinking men than among abstainers, because alcohol weakens the vitality, lessens the power of resistance, renders the body more susceptible to disease.—ADOLF BAER, M. D., Royal Sanitary Commissioner, Berlin.

Life is considerably shortened by the use of alcohol in large quantities. But a moderate consumption of the same also shortens life by an average of 5 or 6 years.—AUGUST FOREL, M. D., Professor of Psychiatry, University of Zurich.

According to Dickenson, tuberculosis is 3 times as frequent among drinkers as among abstinent people.—*The London Lancet.*

ALCOHOL THE GREATEST ENEMY TO THIS GOVERNMENT OF THE PEOPLE

It is brains that tell in the industrial struggle which is upon us, not brute force merely. And drink muddles brains, fuddles brains, drowns brains, both of the individual and of the nation. —MR. JOHN NEWTON, Faversham, England.

EVEN MODERATE DRINKING IS UNSAFE

Alcohol has the power when taken frequently, even in small quantities, to create a diseased appetite for more which may become uncontrollable.—Statement signed in 1896 by 35 eminent physicians of the United States, to be taught the school children.

In view of the foregoing facts, every vote for license is a vote for that which

Reduces working ability,
Shortens life, Creates appetite for itself,
Breeds dullards, Endangers the republic.

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O what a dawn of day!
How the March sun feels like May!
All is blue again
After last night's rain,
And the South wind dries the hawthorn spray.
—BROWNING.

A MESSAGE TO LOCAL WORKERS

THE saloon with its record of crime, broken hearts, and ruined lives is the darkest blot on the fair face of our American civilization. But it is doomed to go.

First, because the use of alcoholic drinks is a relic of an ignorant, barbaric age. That ignorance is dispelled by the investigations of modern science which show that there is not a single argument for the use of these drinks that has any basis in truth.

Before the second co-ordinate proof that the saloon is doomed to go we stand with reverent awe, for it shows God's purposes of mercy to our land. It is this:

As the testimony of science has poured in its light, proving alcohol to be, not a good creature of God designed for human comfort, but a subtle, destructive poison that is always, in small or large quantities, a dangerous beverage at war with human well-being, the legislatures of this country have enacted laws providing that all the people shall know these facts through the education of all the children in the public schools. The legislatures have done their part. Science has done its part and is constantly adding to its testimony against even the most moderate use of alcoholic drinks. The Bureau of Scientific Temperance Investigation has done its part in collecting and translating these findings of science into simple language adapted for incorporation into school text-books on physiology and hygiene for all grades of pupils in our public schools. An ample school literature is ready.

It now remains for the temperance people to do their part in insisting upon the full inforcement of these temperance education laws. If they do, the final going of the saloon is not far off.

Only the ballots of a majority of the voters can close the American saloon. But men will not vote to prohibit the sale of beverages they believe in and want to drink. Hence, there must first be education as to the evil nature and effects of the drinks the saloon has to sell. How largely can scientific temperance instruction in our public schools reach the future voters and through them the voters of today?

The laws require that physiology and hygiene with special reference to alcoholic drinks and narcotics shall be studied as a regular branch by the pupils in all our public schools.

Each child of these millions of children in our country is every year receiving lessons in the physiological reasons for obeying the laws of health, if the law is properly inforced. Of these lessons about one-fifth are warnings as to the dangerous nature and effects of alcoholic beverages and other narcotics.

Most of these children repeat some part of their lessons at home, and for all these temperance lessons to the children, and through them to the parents, the state pays the bills. By what other instrumentality could so much temperance instruction be given to the rising generations and through them be diffused among the homes and people of your state?

The success of this great movement to train the boys and girls in that sobriety which is already making us one of the most achieving of the great nations must now, as always, depend largely upon the way in which the faithful, consecrated workers in every locality persistently agitate, and constantly follow up the advantages gained in the past.

Let me in this connection pass on to you the personal watchword that has been my guide through all the strenuous years of effort for the temperance education of the children of America:

"What ought to be done can be done by whoever has the courage and the faith to undertake it, for Omnipotence is pledged to such an one."

"If people would only pay as much attention to the rearing of their children as they do to the raising of corn, child culture would soon be reduced to an exact science.

"Let their souls drink in all that is pure and sweet. Rear them amid pleasant surroundings. Put the best in them by contact with the best outside. They will absorb it as a plant does the sunshine and the dew."

Grammar Lessons

FIFTH OR SIXTH YEAR

BODY HEAT

HISTORY nowhere shows more plainly the quick results to be obtained by teaching the children, than in the story of the Children's Crusade.

The tale is a familiar one. The Holy Land and the Holy Sepulcher had been for many years in the hands of infidels, and five crusades participated in by hundreds of thousands of men and women had failed to wrest these sacred places from the Turks, because, as it was then believed, of God's wrath for the sins of the camp.

About 1212, Nicholas and other fanatical priests went through Germany and France calling upon the children everywhere to undertake the recovery of the Cross and Sepulcher, which their fathers had been unable to accomplish.

Urged by these impassioned appeals, boys and girls to the number of many thousands, although forbidden by their distracted parents, and in some cases even imprisoned, rushed to the standard of the cross, and without money, provisions, or leaders, entered this Holy War, marching many weary miles, and shouting their rallying cry, "Lord Jesus, give us back the Holy Cross," as they journeyed.

Their crusade was unwisely undertaken and it ended disastrously. Some of the children were lured on board ships, carried off to Africa, and sold into captivity, and only a few of the others ever reached their homes. None of them ever saw the Holy Land.

In our country more than 20,000,000 public school children stand before their teachers and await their appeal to enlist in another war more holy than ever Crusader undertook, a war that has been wisely planned, and that is sure to end in victory.

Our land is the Promised Land to tens of thousands who each year leave the old world and come to the new, seeking that precious boon, human liberty. Our liberties are in the hands of the sovereign people who, by their ballots, may conserve or destroy them. The voters of tomorrow are today in our public schools. The future sobriety of the people and thus the safeguarding of their heritage of liberty depend upon whether the boys and girls listen and respond to the voices which teach the dangers to our country that follow the degeneracy of the individual through the use of alcoholic beverages, or to those other siren voices which, by condoning the moderate use of liquors, undermine the very foundations of personal and civic liberty.

The youth of America are as susceptible to appeals to lofty endeavor as were the Crusade children of old. The laws of our country provide that all the children of the nation shall be taught the nature and effects of alcoholic drinks and other narcotics in connection with physiology and hygiene. To us, as teachers, it is given so to inspire these hosts of boys and girls with a sense of their responsibility to themselves and their country in the matter of right living that in this twentieth century there may be another Children's Crusade which shall win back this land from the unholy power of alcohol.

HOW HEAT IS FORMED IN THE BODY

Before this subject is taken up, let the teacher provide herself with a small bar of iron and a piece of marble or other stone and wrap them up warmly in flannel. She may also ask one of the girls to bring a warmly dressed doll (preferably a china doll) to school. She should procure a clinical thermometer or, if that can not be obtained, a common thermometer that may be unfastened from its metal support.

When the class is called, take the iron and stone from their wrappings, allow the children to handle them, and let some member of the class take the temperature of each and also of the doll. They have been warmly wrapped up, why do they not feel warm?

If there is a hot stove or heater in the room, let one of the pupils hold his hand near it and feel the heat that comes out. Take the temperature of the stove. How is this heat produced?

Now let some child take the temperature of another, placing the thermometer under his tongue for a minute or two. What is the result? Take the temperature of the hand also, and other exposed parts of the body and bring out the fact that the body itself gives out heat whether clothing is over it or not.

Learn from the book what the temperature of the healthy body is. Explain the reason for the differences in the temperature of the marble, the stove, and the body? Develop the point that clothing is worn not to make the body warm, but to keep it warm.

Fire in an engine gives out heat and makes the engine move. How is this like the heat of the body? How is it different?

What is the first thing necessary to a fire? Does the body also require fuel? What is the fuel of the body? How is it different from that of a stove?

If a good fire were started in a stove and all the dampers were closed tight, what would happen? Why will a torch not always burn when let down in a deep well?

Why does not the fire burn so well when the air is heavy?

Explain briefly why burning can not proceed unless there is oxygen (a gas in the air) present.

Help the class to find out what oxidation is. Provide a little coil of magnesium wire and rub it clean with emery paper. Cut it in two and apply a lighted match to one half. Note that it burns rapidly with heat and light and leaves only a little white ash (magnesia). Show later that this ash is now waste matter and can not be burned again. Put the other part of the wire away in a bottle with a few drops of water and note in a day or two the white ash (magnesia) which has collected on the wire. If it is left long enough it will be entirely oxidized.

But in this second experiment no heat was felt, because the oxidation was so slow that the heat could not be detected. Explain that, nevertheless, the same amount of heat was given off in each case.

What happens when a boy leaves his knife with the steel blade uncovered where moisture can get on it? This rusting is another example of oxidation, and there was heat here too, although we could not feel it because it passed off so slowly.

Point out that oxidation may be rapid and accompanied with considerable heat, or slow with little heat, but that when oxidation takes place heat is always generated.

Mention other examples of each kind of oxidation. Of which sort is that in the body? An ounce of food oxidized in the body will produce as much heat as it would if burned outside.

What is left behind after the fuel in the stove is consumed, and what goes up the chimney?

Will a fire once started burn on indefinitely without fresh supplies of fuel? Neither can the body keep up its heat without an adequate supply of fuel. The ashes and smoke of bodily oxidation must be removed constantly and replaced by new fuel, just as the ashes must be frequently removed from a stove.

The two things necessary to oxidation are oxygen and fuel. Food is the fuel which is oxidized in the body and produces heat and motion.

The oxygen comes from the air we breathe.

WORK OF THE BLOOD AS OXYGEN CARRIER.

Oxidation in the body comes from the uniting of oxygen and fuel or food within the tissues.

Learn from books how the oxygen which we breathe into the lungs, and the food which is taken into the stomach can be carried to all parts of the body and have opportunity to unite and be oxidized.

Liken the red corpuscles to laborers which carry oxygen in tiny red bags (sacs), and the white corpuscles to so many soldiers who are always on guard in every part of the body to attack every disease germ or other harmful thing which by any chance enters the body. The highways along which they pass are the blood tubes. What composes the serum of the blood?

What remains after the oxidation of food in our bodies? How is this waste disposed of? Learn from books that the skin, lungs, and kidneys are the organs that carry off the waste from the body combustion. How does the use of alcohol affect the excretion of waste?

REGULATION OF BODY HEAT

In what two ways do we regulate the heat of a stove? When do we use the most fuel? What sort of food do the Eskimos eat? People in the torrid zone? What do we eat in the temperate zone? Give reasons for these differences in diet?

Write a list of articles of food on the board. Which of these furnish the most heat and motion? Are any of these undesirable? Why? Find what the books say on this point.

At what time of the year do we eat the same class of food as the Eskimo? the people in the tropics? Why? In which season do we eat the most food?

How do we sometimes cool a room in hot weather? Point out that it is the evaporation of cool water sprinkled on the floor which reduces the temperature. What do we sometimes do when our faces are hot and flushed? What happens when we are very warm? Explain how the skin pours out a great deal of perspiration at such times to cool the body, and gives out only a little when we are cold or only comfortably warm.

There are, then, two ways by which the temperature of the body is kept the same, by taking more fuel or fat-making foods in cold weather and by the equalizing of heat by perspiration. Thus nature makes man capable of enduring great extremes of heat and cold.

Years ago there was a man called the "Fire King" who could go into a red hot oven and stay five minutes. His body heat was cooled by profuse perspiration. On the other hand, travelers in the polar regions endure cold equal to 50 degrees below zero.

Describe briefly the heat received from such outside sources as the sun and from fires, and its conservation by shelter.

By what means does man who must be subjected to many extremes of heat and cold adapt himself to these changes of temperature?

CLOTHING

Have the pupils write lists of the principal animals in very hot countries, of those found in the temperate zone, and those in the far north.

What sort of covering have the bodies of animals in hot countries? Do they have thick fur? Why are the hides of elephants and some other animals very tough and strong? What sort of clothing do the people of hot countries wear?

What is the nature of the covering of the arctic animals? How do the Eskimos dress?

Is the fur of animals in the temperate zone as heavy as that in the cold regions? Compare the coat of a horse or dog in the summer and in the winter. Tell how they change their clothes from thick to thin.

Let one pupil write upon the board a complete outfit of clothing suitable for a cold winter day, another, one for a very hot summer day, a third, one suitable for a rainy day, and a fourth, one for vigorous play.

From what source do we get cotton and linen? Where do they grow? For what kind of weather is clothing made from such material most suitable?

Where do our silk, wool, and fur garments come from? For what weather are these most suitable? Point out that woolen garments and fur are not good conductors of heat, and therefore keep the body heat from escaping.

Where do our rubber boots and rain coats come from? Why not wear these in the house?

To what are we indebted for our shoes, our kid or leather gloves? Why do we wear shoes in summer, and heavy gloves when we have to do rough work?

What would happen if the body were exposed directly to the rays of the hot summer sun? Why is it necessary in hot weather to wear hats and perhaps also protect the head further with a sunshade?

EFFECTS OF ALCOHOL ON BODY HEAT

Probably none of the delusions as to the beneficial effects of alcoholic beverages have been more widespread than the two diametrically opposed to each other, that alcohol enables the body to resist cold in winter and prevents overheating in summer.

The teacher should be very careful to emphasize the point that to take alcoholic beverages before going into the cold is to throw away a part of the body heat for which there is now unusual need.

Tell the story of the adventure of a number of travellers who were caught in a snowstorm in the Sierra Nevada mountains. They were exposed to great cold, and before lying down to sleep several took large quantities of alcohol which made them feel warm and comfortable. Others took a little. Part of them took none and went to sleep feeling chilly. In the morning those who took a large quantity of alcohol were frozen to death; those who took a little were frost-bitten; but those who took no alcohol suffered no serious results from the exposure.

Discuss this story and similar ones which pupils may be able to give, and make it clear how alcohol sends the blood to the surface of the body where it is quickly cooled, thus cooling the body.

Bring out also the fact that alcohol by lowering the resisting power of the body makes it less capable of resisting extremes of heat.

Discuss the authoritative quotations, and from them and books learn how alcohol, by damaging the blood corpuscles, lessens oxidation, and predisposes to disease.

AUTHORITATIVE QUOTATIONS

In the larger cities of this country the cases [of sunstroke] are almost exclusively confined to workmen who are much exposed, and at the same time have been drinking beer and whisky. —OSLER *in Practice of Medicine.*

Drink is certainly the most powerful predisposing cause of the development of the symptoms of sunstroke.—SURGEON PARKE, Med. Officer of the Emin Pasha Relief Expedition.

Purity of blood encourages health; its impurity encourages disease. Whatever lessens the normal amount of oxygen cripples the functions of the body in its attempt to secure a restoration to health.

The microscope reveals that under alcoholic influence the red corpuscles of the blood become corrugated, shriveled, adherent to one another, and incapable of conveying their normal amount of oxygen. The blood being incapable of conveying its normal amount of oxygen, it is not difficult to recognize that the diseased system will suffer greatly from the lack of material which has a profound effect in vitalizing the tissues and aiding the natural functions of the various organs.—J. W. GROSVENOR, M. D.

The blood owes its beautiful red tint to millions of microscopic discs. The red matter with which they are charged in passing into the lungs absorbs the air that has been inhaled, and transports it everywhere. But alcohol encumbers this beneficent action, and so intervenes that the dark blood of the veins is not so com-

pletely changed as it ought to be into arterial blood, red and vivifying.

But this is not all. The blood contains other globules which are of the greatest interest. These are white globules. If a thorn penetrates the skin, immediately they flow to that place, surround it, form matter which detaches it, and get rid of it. If a microbe wandering about gets into our organism, immediately the white globules in the vicinity hasten to meet it, struggle with it, and finish by swallowing it.

These few words indicate the important role which falls to their lot in the protection of our health. Alcohol, continuing its perverse action, does not leave them intact. It sends them to sleep, it makes them drunk, and so delivers us without defense to the enemies which lie in wait for us.—Dr Bienfait, Liege.

Water is the best drink of all.

When venous or impure blood reaches the lungs, heavily laden with exhausted, worn-out material, or fatty matter, it meets with the air which has been taken in by the windpipe. This air parts with its oxygen, which unites with the carbon and hydrogen of the waste and fatty matter in the blood, purifying it and fitting it for all the purposes of nutrition.

Now let us send an inordinate amount of pecularly combustible material, alcohol for instance, from the stomach to the lungs, along with all the waste that naturally falls in with each circuit of the blood.

What do we observe? We find that the oxygen of the air has a greater affinity for the alcohol than it has for the waste material, and if a liberal quantity of alcohol has been taken, more than an ounce or an ounce and a half in twenty-four hours, the whole, or a great part of the oxygen is consumed by it, and the impurities in the blood, which should be consumed or changed by the oxygen, go on unchanged, and we have impure blood circulating through the arteries and capillaries.—Flint's *Practice of Medicine.*

"No man can try to help another without helping himself."

MARCH

BY. E. K. STEVENS

OH the tossing of the branches,
The living, budding branches
High in air!

And the sun that shines so brightly,
The shadows dancing lightly
Everywhere.

The gurgle of the water,
The laughing, sparkling water
Flowing by;

The wind—a thrill of vigor,
Now a roar of winter rigor,
Now a sigh.

Above, the blue sky leaning,
Brightly shining, full of meaning.
Perfect arch!

Breezes bracing, dry leaves chasing,
Wind-tossed branches interlacing,
This is March!

"Now children," said the teacher, "let us see what you remember about the animal kingdom and the domestic animals that belong to it. You have named all the domestic animals but one. Who can tell me what that one is? It has bristly hair, likes dirt, and is fond of getting into the mud."

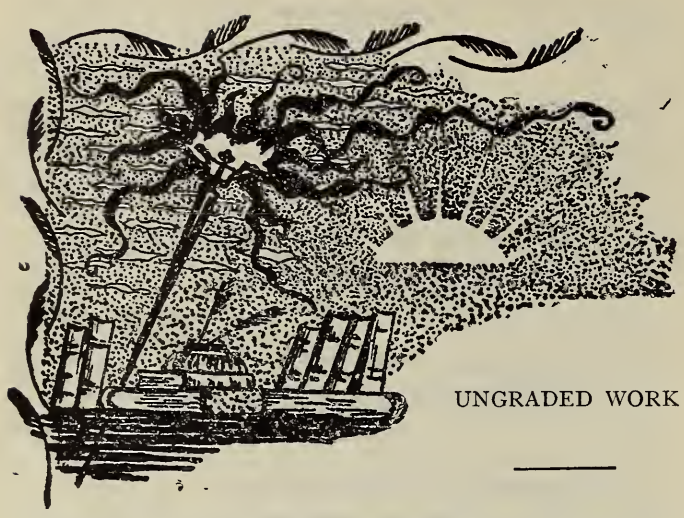
Miss Fanny looked expectantly around the room. "Can't you think, Tommy?" she asked, encouragingly.

"Yes'm," was the shame-faced reply. "It's me."—*Tit-Bits.*

WHY THEY MEWED

Philip had gone to bring in the new kittens to show them to a visitor. His mother, hearing a shrill mewing, called out: "Don't hurt the kittens, Philip."

From the hall came the reassuring answer: "Oh, no. I'm carrying them very carefully by *the stems.*"—*Union Signal.*



UNGRADED WORK

PHYSIOLOGY IN UNGRADED SCHOOLS

BY ELIZA MOWRY BLIVEN

THE object of the public schools is to promote intelligence and make good citizens. Most intelligent people know that drunkenness is the main cause of crimes, poverty, and bad citizenship, and that it also breeds many diseases, miseries, and political corruption.

Any use of intoxicants tends towards the drunkard's appetite. Many are not aware how the use of tobacco leads to the use of liquors. They are twin evils. And the tobacco appetite is fostered by numerous unhealthful habits begun in early childhood, because mothers are ignorant of physiology and Nature's health laws.

Which is easier and surer, to reform the drunkards, or to prevent people from becoming drunkards and criminals? Since it is almost impossible to reform those who have used liquor or tobacco for many years, the way to diminish their use is so to teach the young as to prevent their forming these habits.

In cases where the father is a hard drinker, he may think it is smart to coax his little ones into drinking and smoking. His conscience is too seared, or he is too ignorant to teach them what he ought, hence right instruction must be given in the public schools.

Where physiology is well taught, the children learn what each organ in their bodies is for; how healthful foods, air, water, exercise, etc., make them grow strong; how to take proper care of themselves in order to keep healthy; and why alcohol, tobacco, and other narcotics harm people. Thus forewarned, the children choose to avoid tobacco and intoxicants with all their dire results.

Physiology, well taught in the schools, means much besides the prevention of drunkenness. After the girls leave school many will become wives of laboring men and mothers of the next generation. Their work will be largely cooking cleaning, and guiding the family to prevent filth and disease, and trying to develop in their children good habits, healthy growth, and all the qualities that make for good citizenship.

Will a thorough knowledge of arithmetic, geography, and grammar, or physiology be most useful to those girls after they leave school? Physiology will help them constantly; but much that they learn in other studies will never be used and will soon be forgotten.

Physiology, to prevent disease and the formation of bad habits, is necessary to boys, because health is essential to success in every kind of business and in every walk in life.

If arithmetic or geography were taught only once a week it would be largely a failure. So with physiology. It should be taught every day. But the crowded teacher exclaims: "Oh, I haven't time for another study. Parents want those we already have."

But the future success, happiness, safety, health, character, usefulness of these pupils, and the welfare of the nation require the physiology lessons. Teach a little less arithmetic, if need be, and give physiology ten minutes every morning *before* the arithmetic lessons; and twenty years hence your pupils will look back to these physiology lessons as the most valuable and helpful of all their school course.

Do you wonder how it can all be taught in ten minutes a day? Divide your school into five grades. Place one physiology topic on the board Monday morning for the whole school the entire week. Monday teach the youngest grade children something on this topic which they can understand.

Tell the second grade where they can find something more on this topic in their little physiologies and learn it to recite Tuesday morning.

The third grade must hunt up something else on the same topic in any physiology, with or without the teacher's help, which the lower grades have not recited, for their Wednesday's recitation.

The fourth grade must hunt for and recite Thursday morning whatever they can find in all physiologies obtainable that the lower grades have not recited.

For Friday, the most advanced pupils will not want to be outdone by the younger ones, so they will hunt in physiologies, cyclopedias, health journals, or temperance works, in order to recite something which has not been given by any of the rest. Thus each grade must listen to the lower grades, thereby taking a thorough review, as well as learn a little in advance, to recite quickly within the ten minutes.

I believe this method will make physiology the most interesting, exciting, and thoroughly

learned study in school. A new topic each week would divide the subject into forty topics in the year. The next year the oldest pupils leave school, and the rest are advanced one grade, so the same topics will be appropriate each year.

This course is planned for our ungraded country schools. If all country school boards would introduce this method into their schools I feel sure it would promote the general welfare of all classes of people. Teach physiology rightly to all the children, and through them to all the fathers and mothers, and it will make total abstinence popular; then the saloon business will be given up for lack of customers.

A SPRING AIRING

BY MARTHA BURR BANKS

All the good little kittens have washed their mittens,
And hung them up to dry;
They're gray and fluffy, and soft and muffy,
But it's time to lay them by;

And now that we've come to the spring of the year,
They have them all out airing here;

And that is the reason, I do suppose,
Why this little tree that every one knows,
By the name of Pussy Willow goes.

"The people of tired cities come up to these shrines to pray;
God freshens again within them as He passes by all day."*

A little girl came running to her mama with the announcement that her stomach said it was dinner time.

"Perhaps you had better go and see what the clock says, my dear."

After some study, "Mama, that clock says my stomach is ten minutes fast."—*Journal of Education.*

"Dame Nature, with maternal pride,
Her plans has made.
She'll soon awake from out the dream—
Spread o'er the land a beauteous sheen,
With hill and vale in verdant green
Arrayed."

An Irishman who was not feeling well dropped in to consult a physician. The latter began operations by feeling the patient's pulse.

"Phwat's the good of feeling me wrist, doctor," said Pat. "Sure, and it's in me stomach the pain do be."—*Chicago News.*

"The real test of education is not found in doing again what one has done, but in what one does in *new* situations. Education is the power of effective accommodation rather than of habitual adjustment."—JOHN A. KEITH, State Normal School, De Kalb, Ill., in *School News and Practical Educator.*

*Courtesy of Boston & Maine Railroad.

BOOK NOTICES

THE SALOON PROBLEM AND SOCIAL REFORM, by John Marshall Barker, Ph. D., Professor of Sociology in the School of Theology, Boston Universtiy. Everett Press, Boston.

It is a long time since we have seen an abler or more judicious discussion of the saloon problem, and we know of no recent book that gives so wide a range of accurate and authoritative data in such a compact, well written, and withal intensely interesting form.

From the chapter in which Professor Barker states the problem as not a question of the individual's personal liberty to drink, but of whether the saloons as a social menace shall be maintained or suppressed, through the chapters dealing with the economic, political, social, and criminal aspects of the question, we have a vivid panorama of how the saloon robs the laborer and tax payer; strikes at the very roots of our political liberties through bribery and corruption, endangers the institutions upon which social life depends, by destroying the home, circumscribing school privileges and nullifying church influence; and directly and indirectly is the "chief breeder of lawlessness" and anarchy.

In these chapters he has marshalled all the forces of the saloon, told them by rank and file, and enumerated their strength.

In the eight chapters following he has placed in battle array the mighty forces of active Christian altruism. He makes it clear that the heaviest battalions are on the side of the temperance hosts, and that even now the liquor traffic is engaged in a hand-to-hand conflict for life itself.

His discussion of church unity, legislative action, formation of public opinion, and law inforcement presents an epitome of the best and most successful methods evolved from long experience.

To scientific temperance instruction he pays the just tribute that it "is gradually changing the social customs for the better. The good fruits of this work are in evidence. Those who will remove the bandage of ignorance and prejudice from their eyes regarding this work can not fail to discover that it will greatly undermine the foundations of the saloon system."

Busy people in every walk of life, writers and public speakers will find in this inexpensive little book just what they have long been seeking, and to all temperance workers it would seem to be indispensable. Temperance organizations should see that it is added to their libraries and freely circulated, and also that all public libraries are supplied with copies.

THE GIFT OF GOD. A temperance service arranged by Rev. W. C. Martin and E. S. Lorenz. 5 cents each, 50 cents a dozen.

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This volume of 288 pages, printed in clear type upon good paper, and embellished with 100 pictures and maps furnishes a unique arsenal of weapons to the clergyman, reformer, or layman who desires to know and use the freshest materials available from a worldwide view of the use and effects of alcoholic liquors and opium among the childlike races of the earth, including those of Japan, China, the Philippines, and our territorial possessions. In addition to the recent statements of more than 100 missionaries and travelers, it includes a consideration of the newest temperance questions in civilized as well as savage races, devoting some 30 pages to a study of the army canteen, the testimony of military and civil officers against it, and the important experiments by the British army in the line of total abstinence. Speakers and writers will also find the brief history of the temperance movement from ancient times to the present very useful and interesting.

The attention of our readers is called to the fact that bills for the SCHOOL PHYSIOLOGY JOURNAL are sent to subscribers only. No one who has not ordered the JOURNAL need fear that he will be called on to pay for it. If the JOURNAL comes to you regularly and you have not ordered it, it is being sent to you through the courtesy of some friend who wishes to provide you with its help in your school work. All subscriptions, if not renewed, are discontinued as soon as they expire.

PHYSIOLOGY TOPICS FOR MARCH

PRIMARY—Parts of the Body Necessary to Life: Head; Trunk. Food. Table Manners. Beer, Wine, Cider. Bones. Aids to Growth. Correct Position.

INTERMEDIATE—Fruit and Grain Poisons: Effect on Nerves and Blood. Proper Position.

ADVANCED—Muscles; Care and Training. Body Heat. Food. Exercise. Rest.

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MARY H. HUNT, EDITOR

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School Physiology Journal

Vol. XV *BOSTON, APRIL, 1906* *No. 8*

THE AWAKENING

BY CHARLES C. B. ROBERTS

DAFFODIL, lily, and crocus,
They stir, they break from the sod,
They are glad of the sun, and they open
Their golden hearts to God.

We, scattering troops and kindreds,
From out the stars wind-blown
To this wayside corner of space,
This world that we call our own,

We, of the edge-rows of Time,
We, too, shall divide the sod,
Emerge to the light and blossom,
With our hearts held up to God.

THE SCIENTIFIC PERIOD OF THE TEMPERANCE MOVEMENT

BY FRANK WALDO, PH. D.

Former Assistant Astronomer of Harvard University, and later Official Member of the Weather Bureau, Washington, D. C.

IT has frequently happened that great moral and social conflicts have taken place without the importance of the fight and the methods employed becoming generally known even to some in the very field of battle. Perhaps no stronger example can be mentioned than the fight which is being waged against the use of alcoholic compounds as beverages.

Comparatively few persons who have not been in direct touch with the later stages of the work know what has been and is being done by those who have at heart the lessening of the evils due to the use of alcoholic liquors.

TEMPERANCE AT FIRST A MORAL UPRISING

The temperance movement is of course nothing new, and the tide of sentiment against rum which swept over this country three-quarters of a century ago must be regarded as the beginning of the most wonderful of all the moral uprisings which have taken place in America. It was indeed a moral epidemic, but it was only a phase of the movement as a whole which has passed through several wholly distinct stages— although with but a single object.

Previous to about 1830, the use of alcoholic beverages was common in all grades of society. Then, for thirty years, the gospel of temperance was everywhere preached and accepted with the same earnestness as religious beliefs— in fact it became a religious doctrine. People were arrayed either for or against it,— there was no lukewarmness.

But science had not yet dispelled the notion that alcohol will help men bear the stress and strain of conflict, hence the outbreak of the War of the Rebellion played havoc with temperance principles and was most distinctly a period of relapse.

At the close of the war, strong adherents to the cause of temperance felt that drastic measures alone could bring about a reaction, and the temperance lecturer entered the field. The fear of the awful consequences of the rum habit was the main appeal, and the famous Black Valley Railroad stretched its haunting lines into the remote corners of the land. Temperance societies sprang up, and the times of 1830 were repeated.

THE WOMAN'S CHRISTIAN TEMPERANCE UNION

But a new and distinct period was being entered upon in which the women of the nation were for the first time to unite in the suppression of a great moral and social evil. Instigated by women of strong personalities, and abetted by many of the clergy and lay religious workers, crusades were inaugurated against the purveyors of liquors.

The results accomplished revealed to the American women the power that lay in concerted movement, and the Woman's Christian Temperance Union was born.

Just as the first temperance movement appealed to the common sense of the people regarding the betterment of their physical condition, so this was a moral and spiritual movement, and its influence has continued on that basis up to the present time.

Still a third phase, which may be designated the intellectual or scientific period of the temperance movement, was slowly being developed. Since it is the latest and inherently the most important of the temperance movements, and is least known, a somewhat detailed account of its development is in place.

STUDY OF THE NATURE AND EFFECTS OF ALCOHOL

The question as to the inherent qualities of alcohol arose as a natural consequence of scientific inquiry. The matter is primarily one for the scientists to decide through careful investigation, but if it is to be of value to humanity it can not end with a statement of analyses and immediate effects of alcohol on the human system.

The information that must be acquired to consider properly the alcohol question must come from specialists in a dozen different lines of scientific inquiry; and when it is remembered that investigators who are working along the same lines frequently do not agree in their results and still more frequently do not agree in their interpretation of the same results, it will readily be recognized that it is not an easy task to reach conclusions which bear the stamp of absolute truth.

A GREAT LEADER PROVIDED

It is one thing to sift out the real facts from the mass of scientific testimony; it is quite another thing to place these facts before all the people. Strangely enough it has fallen to the lot of one woman to be instrumental in accomplishing both tasks, and when I mention in this connection the name of Mrs. Mary H. Hunt of Boston, all who are familiar with the story of the temperance movement during the past twenty-five years will agree that to her initiative and continuous endeavors are due the marvelous accomplishments in both these lines of development and the present advanced condition of the movement as a whole.

From time to time, in the intellectual history of our nation, there have come into prominence women who, by reason of natural mental endowments assiduously cultivated, have taken their place with the foremost men of their times. Such a woman was Maria Mitchell; and such a woman is Mary H. Hunt.

No judge of such matters can talk with Mrs. Hunt for a quarter of an hour without recognizing the marked scientific bent of her mind and its analytical and philosophical strength. If Mrs. Hunt had not taken up the alcohol question as her life work, she would have attained eminence in some other line of research to which her energies might have been bent.

HER PREPARATION FOR THE WORK

The telling of the story of the development of this movement requires a brief mention of Mrs. Hunt's preparation for her work.

She was for some years a science professor in an eastern college where she made a speciality of chemistry. It was during the years 1872-76, when her talented son, Alfred E. Hunt of aluminum fame, was a student in the Massachusetts Institute of Technology, that Mrs. Hunt, while carrying on chemical studies with him for his guidance and encouragement, was led from the study of alcohol as a reagent to an investigation of its origin, nature, and particularly its effects on the human system as disclosed by scientific research.

She studied the work of European investigators, particularly that of Dr. B. W. Richardson, and reached the conclusion that there was a scientific basis for the movement against the use of alcoholic liquors as a beverage.

That this information should be collated and put into proper form for presentation to the American people became impressed upon Mrs. Hunt's mind, and it slowly dawned upon her that not only did her own equipment make it possible for her to undertake it, but there came the settled conviction that it was a duty to enter upon this work. This "call" came to a woman of Mrs. Hunt's perception and education just as it comes to the physician to spend his life in ameliorating the distress of humanity, or to the scientist who studies psychology or sociology to advance man's knowledge of man.

Mrs. Hunt's studies convinced her that alcohol must be treated as a drug and a poison, rather than as a food, from the beverage point of view. It was then an imperative duty to warn in the light of the best scientific research those who used or who might become habituated to its use.

THE SCHOOLHOUSE TO DECIDE THE TEMPERANCE QUESTION

She became convinced that the only way to disseminate this knowledge widely was to have taught in the schools the facts regarding alcohol and its physiological effects in connection with physiology and hygiene.

A series of articles in the New England *Journal of Education*, bearing the title "The Schoolhouse to Decide the Temperance Question" was the opening volley in the fight, both aggressive and defensive, which she has waged for nearly thirty years in order to accomplish what may justly be regarded as her life work, namely, the enactment of state laws making instruction concerning alcoholic liquors and their physiological effects compulsory in public schools throughout the United States, and more, the arousing of a sentiment in other countries that will, unquestionably, result in the extension of these laws throughout the civilized world.

Mrs. Hunt, very early in her studies of alcohol, became convinced that while the moral appeal might reclaim many topers, yet that the common usage of alcoholic beverages had given rise to a popular misapprehension as to the harmful and even dangerous character of alcohol in small quantities, and the fact that the habitual even though moderate use of alcoholic drinks sufficed to create an uncontrollable appetite for it similar to that aroused by the recognizedly dangerous narcotics.

If the facts regarding alcohol could be impressed upon the young before they became addicted to the use of alcoholic beverages, they

would be forewarned of the evil effects, and not only be prevented from falling into the alcohol habit themselves, but also, as they acquired influence, would use it to prevent the habit from fixing itself upon others.

The first school system to adopt Mrs. Hunt's propaganda was that of Hyde Park, Massachusetts, which, in 1878, put scientific temperance on its regular list of studies.

THE DEPARTMENT OF SCIENTIFIC TEMPERANCE INSTRUCTION

Mrs. Hunt realized that something more than a single-handed fight was necessary to accomplish the task of nationalizing her scheme, and she felt the necessity of getting the co-operation of a powerful body of organized workers. Accordingly, in 1879, Mrs. Hunt laid before the Woman's Christian Temperance Union her plan for securing the introduction of the study of physiological temperance into the public schools, and in the following year the society created the Department of Scientific Temperance Instruction in Public Schools, and appointed her national superintendent. Thus was a powerful movement inaugurated; but it remained to carry it out,—truly a mountain of labor.

"Love sings, too, 'midst all the pain and strife,
There is no death:
I am the Resurrection and the Life."

When Mrs. Hunt began her studies in what may be termed temperance pedagogy, not only was there no required instruction on the alcohol question in any of our public schools, but there was no available text-book literature on the subject, nor any guide for oral teaching. The facts had not been even collected from their various scientific sources.

It devolved upon Mrs. Hunt to collect these facts, to see that they were properly presented in the various text-books, to secure the passage of state and national laws commanding that the teaching of this new phase of science be carried out in the schools, to see that these laws were obeyed, and to meet the opposition that fought the whole work of propaganda from beginning to end, from the fierce onslaught of the liquor dealers to the tacit silence of the sympathizer of social drinking who had not manhood enough to range himself on the one side or the other.

THE BUREAU OF SCIENTIFIC TEMPERANCE INVESTIGAT'ON

Mrs. Hunt used her scientific training and marked scientific ability in gathering together the necessary material for the proper presentation of alcohol knowledge to students and readers. She had already done much of this work for her own information, but now she was obliged to inaugurate that system of systematic research which she has kept up for a quarter of a century and which has made her in point of thoroughness the first specialist in her department in the world. With her corps of searchers, cataloguers, and translators it may be said that Mrs. Hunt has brought together the gist of every paper of importance that has been published on this subject; and what is more, she has it available for use at a moment's notice.

This vast accumulation of knowledge has served several purposes. It has kept Mrs. Hunt informed regarding any and all researches on the subject, and she has not only been enabled to keep up with the times, but she has thus had at hand the very latest results to guide her in making her own formative plans which have so advanced the cause of temperance.

This knowledge has enabled her to furnish authoritative answers to questions which come to her in the spirit of inquiry from correspondents throughout not only our country but the whole world. Such a clearing-house for accurate information regarding alcohol has been a necessity in accomplishing the work which has been carried on. The facts obtained through its agency have been used in backing up every movement for the spread of temperance reform.

PREPARATION OF THE FIRST SCHOOL PHYSIOLOGIES

Mrs. Hunt was obliged to use the knowledge that she had just brought together for the preparation of the first text-books in temperance physiology, and she has used the more recent accumulations in keeping them up to date.

Mrs. Hunt experienced more than the usual difficulty in getting suitable text-books for presenting the subject of alcohol in the public schools. Her first disheartening experience was the spending of several thousand dollars in getting books prepared by specialists, but they were unsatisfactory. Finally, however, one by one suitable books were prepared and a systematic school course was built up. Mrs. Hunt did not herself write the books, but she did collect for the authors truths that are found in these books and outlined a course of study which succeeded so well in this country that it has now become international.

SCIENTIFIC TEMPERANCE LEGISLATION

In 1882, no state in the union had a law requiring the teaching of what may be termed the scientific principles of temperance in the public schools; by 1902, the last state had fallen into line and every state required this instruction. This result was unquestionably due to the ability and persistent purpose of one woman—Mrs. Mary H. Hunt—although she effected its immediate accomplishment by utilizing through cooperation the mighty power of that most thorough of organizations, the Woman's Christian Temperance Union, together with the Christian churches. The strong appeal that carried the hearts of influential men, public officials, legislators, and teachers, was, "It is for the good of the children, the future citizens."

Vermont was the first state to enact a temperance education law, in 1882. Other states followed, and when New York (1884) and Pennsylvania (1885) entered the line, the national success of the movement was assured.

But even now that the laws have been passed it requires the utmost vigilance and pressure to keep them in force. Through the Woman's Christian Temperance Union and its ramifications Mrs. Hunt keeps in touch with every school, school board or school committee in the land, and hears at once of any "let-up" or of obstructive action on the part of opponents to the temperance movement. Instantly the repelling forces are marshalled and the inforcement of the law made sure.

ATTACKS FROM THE LIQUOR INTERESTS

One of the greatest difficulties to contend with in this movement has been the continual warfare that has been waged in the liquor interest which sees in the near future the reign of generations of Americans all of whom are taught the alcoholic danger, and the consequent downfall of alcoholic liquors as a beverage.

These liquor partisans have used every force under their control or influence to retard the educational movement, and they have welcomed with joy the championing of their interests by those who have clung to the view that the social drinking of alcoholic beverages is permissible. The most powerful of these opposing influences was the Committee of Fifty which organized in 1893 and was composed of some of our most eminent educators. They sub-divided into committees and ten years later published a report of their conclusions in two large volumes, "The Physiological aspects of the Liquor Problem."

We can not here consider this report in detail, but in the main it was against the teaching of scientific temperance in the lower schools. Mrs. Hunt has replied to it in a pamphlet printed as Senate Document 171, Fifty-eighth Congress, Second Session. Upon presentation by Mr. Gallinger, it was ordered printed, February 27, 1904.

Mrs. Hunt proved that in the light of the results obtained by the foremost authorities of the world this report of the Committee of Fifty was neither thoroughly scientific nor unprejudiced; and that it did not represent the consensus of scientific and pedagogic opinion.

SPREAD OF SCIENTIFIC TEMPERANCE INSTRUCTION TO OTHER LANDS

European eyes are on our nation to a greater extent than we are inclined to think, and Mrs. Hunt's remarkable work has attracted wide attention not only in Great Britain but on the continent as well. It is impossible in this brief article to give the story of the extention of Mrs. Hunt's propaganda to the old world, but in Great Britain especially it has received the most enthusiastic support.

In February, 1904, upwards of 15,000 members of the medical profession of Great Britain and Ireland petitioned for such compulsory education in hygiene and temperance in their public schools as is now required by law in the United States, and recommended the American Course of Study on this subject, prepared by Mrs. Hunt, to every local school board for immediate adoption. The active committee in this movement is made up of thirty-one distinguished physicians from the universities of Cambridge, London, Edinburgh and Dublin, with Sir William Broadbent, M. D., as chairman; and there is every reason to believe that success will crown their efforts.

In the German nation a new note has been sounded on the temperance question, and it has received a great impetus by the permission given by the Emperor to drink his health in water. The American movement, as Mrs. Hunt's propaganda is designated, has received the attention of German royalty itself, and to Mrs. Hunt has been accorded the pleasure of explaining her work at length to the Empress of Germany

whose interest in the matter has become thoroughly aroused.

THE FINANCIAL SIDE OF THE WORK

In closing this article a word should be added in regard to the financial side of this work. The expenses of Mrs. Hunt's office amount to over $8,000 a year with the practice of the closest economy. To carry on this work to the best advantage would require an additional $2,000 a year. With the exception of an annual grant of $800 [this year $1200] from the National Woman's Christian Temperance Union, this amount has been raised through the work and personal endeavor of Mrs. Hunt who has served the cause from the beginning, not only without salary but at large personal expense. The charge that Mrs. Hunt has personally profited from the sale of school text-books on this subject is therefore absurd.

Too much gratitude can not be expressed to the large-hearted givers who have responded toMrs. Hunt's financial appeals in the past. The work has now become a necessity to the system which it has implanted in our educational life ; but it can be sure of continuance only when an endowment has been provided. A two hundred thousand dollar endowment could not be better devoted to the work of humanity than by placing the Bureau of Scientific Temperance Investigation on a permanent basis, thus relieving Mrs. Hunt from the burden of its maintenance. With every curtailment of the work of this Bureau, the liquor interests gain a thousand-fold. Loss to the Bureau means a loss to the world ; and should its work be permitted to cease, the temperance cause would lose its most powerful ammunition magazine, and the business interests of the country one of their strongest allies—the teaching which leads to the total abstinence habits essential to success.

"Rich music thrills the air
From hosts on hosts of shining ones."

The New York State Central Committee, which is sending the JOURNAL to all city superintendents, superintendents of villages of more than 5,000 population, and all superintendents and principals of graded schools in New York State, has added the names of the 113 school commissioners of the state to the already long list of subscribers.

SONG IN WINTER

O'er the hill the plangent west wind dirges ;
Deeply shrouded is each meadow way ;
Night in day, and day in night time merges
In monotony of white and gray ;
Rainbow gold of promise?—not a ray !
Desolation rules with icy sway !

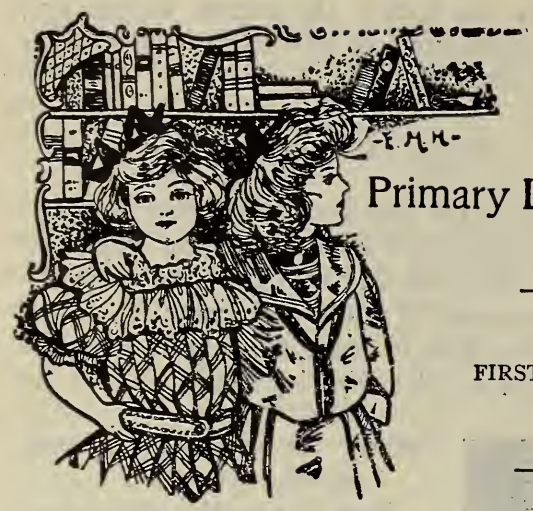
Swing, O planets, on your shining courses !
Bear us past the wintry woe and pain !
Work your wonder, O ye vernal forces !
Let us hear it throbbing through the rain—
The old tender and ecstatic strain ;
April and the bluebird back again !

—(CLINTON SCOLLARD.

The attention of our readers is called to the fact that bills for the SCHOOL PHYSIOLOGY JOURNAL are sent to subscribers only. No one who has not ordered the JOURNAL need fear that he will be called on to pay for it. If the JOURNAL comes to you regularly and you have not ordered it, it is being sent to you through the courtesy of some friend who wishes to provide you with its help in your school work. All subscriptions, if not renewed, are discontinued as soon as they expire.

A mist of green on the willows ;
A flash of blue 'mid the rain ;
And the brisk wind pipes,
And the brooklet stripes,
With silver, hill and plain.
Hark ! the bluebirds, the bluebirds
Have come to us again !

The snowdrop peeps to the sunlight
Where last year's leaves have lain ;
And a fluted song
Tells the heart "Be strong ;
The darkest days will wane,
And the bluebirds, the bluebirds
Will always come again !" —*Sel.*



Primary Lessons

FIRST YEAR

CLEANLINESS

LESSONS in cleanliness can not be begun too early, nor repeated too often.

Object lessons are excellent, and the teacher always has the objects before her. Hardly is there a session but soiled hands and faces and tousled hair are in evidence.

With firmness and infinite patience she must insist that no child may stay in the room unless face and hands are clean and hair smooth.

She must talk early and often about baths, about clean clothes, etc.

Children can not of course, take care of long hair, but it is possible to make them more willing to let other people take care of it. In doubtful cases, short hair is a blessing. The teacher's suggestion often produces an immediate effect.

We are sometimes so eager to get cleanliness at any cost that we forget to call attention to the proper place for attending to the toilet. Emphasize the fact that teeth and nails should be cared for at home.

CLEANLINESS IN ANIMALS

When your kitty gets her paws or her fur soiled, what does she do? Tell how she cleans herself.

How does her fur look and feel when she is through washing?

Have you ever seen a bird take a bath? Tell how the bird does it.

What other animals have you seen trying to get clean?

CLEANLINESS IN BOYS AND GIRLS

How must boys and girls always try to keep themselves?

How do the face and hands get soiled? The dust and dirt stick to them.

If you shake your clothes at night when you are getting ready for bed, what comes out of them?

This is not all dust; some of it is bits of the outer part of the skin which rub off.

Look at the skin on the back of your hand or arm. (Teacher lets one or two of the children look through a magnifying glass.)

How does it look?

It is full of little holes.

Let a child put his hand on the blackboard or glass, making a moist impression. What made the hand leave this mark?

It is the sweat or perspiration that comes through the little holes in the skin.

When do you feel the perspiration on your skin?

All the time, whether you feel it or not, there should be moisture coming out of these little holes.

If these holes get filled with dirt, what happens?

We should see that the skin is kept clean.

If we allow perspiration and dirt to stay on the skin, after a while it may smell bad. We should try not to have any odor about us. Why?

WASHING FACE, HANDS, ARMS, AND NECK

How often do you wash your face and hands?

What kind of water should you use when they are very dirty? What else is needed besides warm water?

You should use good, pure soap, like castile. Never use strong soap, nor soap with much perfume. It may hurt the skin and make it sore.

When you wash your face, wash your neck and ears too. (Let the teacher illustrate with a large doll, or, if she thinks it wise, with one of her pupils, being careful to call attention to each point.)

When we wash our hands, what else should we be careful to wash? Do not forget to get the wrists and arms clean. (Let the teacher illustrate this process as she did the former.)

BATHS

Besides washing face and hands, arms and neck, what else is necessary in order to keep clean?

How often do you take a bath?

When do you take it? The best time for a warm bath is at night. It is a good plan to have a bath every night, so that you will be sweet and clean when you go to bed.

How do you take a bath? If you have no bath tub, you can have a basin of warm water and wash yourself all over with a cloth.

Try it tonight before you go to bed, and see how good it makes you feel.

Use only pure soap, and wash it all off afterwards.

Then rub yourself dry with a towel.

You should never take a bath just after dinner or just before going out.

SENTENCES

I wash my hands with soap and water.
Warm water and soap make me clean.
Do you take a bath every day?

GAME

Let each child bring a doll to school, if she has one, and with a dry bit of cloth make believe wash its face, neck, arms, and hands.

The teacher should take special pains to show the children how to care for their teeth. Not only should she show them how to keep the teeth clean, but she should talk to them about biting hard substances, cracking nuts with the teeth, etc. It is at this time that the permanent teeth are appearing, and injury to them means a loss that can never be made good.

THE TEETH

Besides washing the outside of our bodies with soap and water, there are other parts which we must keep clean.

What part can you name? The teeth.

When do you clean your teeth? You should always clean them before going to bed.

Why do we need to clean them? The food that we eat sticks to them, and if not cleaned off would cause them to decay and ache.

What do you use to clean them? A soft brush is best.

How should you brush? Up and down, as well as across. (Illustrate this carefully, and let the children imitate.)

We should clean back teeth as well as front, inside as well as outside.

If you need to use a toothpick, do it in your room at home, and not on the street or at school.

What is the difference in shape between front teeth and back?

Why are the front teeth thin and sharp, while the back teeth are thick and flat?

We bite with the front teeth. We chew with the back teeth.

Our teeth are covered with a thin white coating. If we bite very hard things or crack nuts with our teeth, what shall we be likely to do to this covering?

If we once break off the hard covering, it never grows on again. What happens then to the soft part of the tooth underneath?

How does a decayed tooth feel? Be very careful not to hurt your teeth.

"Plenty of soap and water
Means fewer doctor's bills.
A dip in the tub, with an after rub
Is better than taking pills."

THE NAILS

What grows on the ends of our fingers? Nails. Why? To protect them.

We ought to let the nails grow to the very ends of our finger tips, but no longer.

It is a good plan to cut our nails once a week. Never bite them. When you bite your nails you spoil their shape.

After playing outdoors in the dirt, how do your nails look? There is dirt underneath them.

They should be carefully cleaned with a nail cleaner. A piece of stiff paper folded to a point can be used for this. (The teacher should illustrate.)

PROPER TIME FOR THE TOILET

Where should we attend to the teeth and nails? Where should we never attend to them?

It is a good habit to do all of this in the morning before breakfast, and at night before going to bed.

SENTENCES

I clean my teeth with a brush.

Do you brush your teeth every night?

Do not crack nuts with the teeth.

I clean my nails every morning.

MY WEALTH

I do not own an inch of land,
Yet all I see is mine—
The orchards and the mowing-fields,
The lawns and gardens fine.
The winds my tax-collectors are;
They bring the tithes to me—
Wild scents and subtle essences,
A tribute rare and free.

—Lucy Larcom.

THE COVERING OF THE BODY

SECOND YEAR

IF the child does not early learn to love personal neatness, the chances are that wrong habits will be formed to be a drag upon all his later life.

This is one reason why lessons in hygiene should be given in all primary and intermediate grades. It will not do to omit this teaching until the child is mature enough to understand the whole subject, for these years are the habit-forming period.

In no better way can children be taught good personal habits than by noticing the care taken by nearly all animals to keep themselves clean, and to live regularly and happily.

COVERING OF THE BODY

With what are our bodies covered? How does the skin feel?

It is thicker on some parts than on others. Why?

It is looser on some parts than on others. Why? Find one of these looser parts. Why is the skin looser on these parts?

GAME

Allow as many of the class as possible to stand and represent animals. The first may say, "I am a dog. I am covered with hair, so I do not need to wear clothes."

Teacher, assuming the child is a dog, "When is the covering of your body thickest? Why?

"How do you keep yourself clean?"

Child number two, "I am a sheep," etc. The teacher asks questions similar to the foregoing.

COVERING OF ANIMALS

(Speak of the covering of animals not personated by children, and its special fitness.)

Why do animals that live in cold countries have long, thick hair?

Why do animals that live in hot countries have thin, short hair?

COLOR OF DIFFERENT RACES

Do all people have the same colored skin?

Would you like to see all fruits and flowers the same color? We should get tired of them, so we like to see people of different colors.

(By giving this view of the matter the teacher will show consideration for all races.)

SHEDDING OF SKIN

Do animals keep the same covering always?

They get new clothing by shedding the old skin, or hair, or wool. (Illustrate, if possible, with snake or insect skin.) We do not shed our skin whole. It comes off in tiny scales.

Toads and frogs have a queer way of getting out of their skins.

When the frog has outgrown his skin, it splits open, and the frog pushes himself out of it, first the hind feet, then the fore feet. He rolls the old skin into a ball and swallows it.

The toad does the same.

How do we get fresh clothing? You are not old enough to earn the money to buy your clothes. Your father has to do that. You can help him by being careful not to tear or soil them.

CARE OF CLOTHING

When your skin is soiled, what does it need?

There are two other things your skin needs; sunlight and air.

SUNLIGHT AND AIR

How many know what happens to a plant that has been kept in the dark?

If you were kept entirely away from the sun, your skin would be pale instead of rosy, and you would not feel strong.

The same thing would happen if you had little fresh air to breathe.

PORES OF THE SKIN

Look at the skin on your wrist. What do you see? What is the name of these holes?

(Speak of the use of the pores and how they should be kept open, and why.)

EFFECT OF TOBACCO ON SKIN

We can often tell a cigarette smoker by the yellow stain on his fingers. Men who want to hire boys often ask them to hold up their hands.

If the tips of their fingers are stained by the use of tobacco, they tell them they are not wanted.

Every one likes to have a soft, clear skin.

THINGS TO REMEMBER

My body is covered with skin.
The skin needs to be kept clean.
It needs sunlight and air.
Tobacco harms the skin.

Cleanliness will do a great deal towards preventing disease. The germs that cause disease often cling to dust. For this reason walls, floors, curtains, and clothing should be kept as free from dust as possible.—ANDREW EADIE, M. D.

Suppose a boy has a lot of cigarettes and smokes a few of them every day. Such smoking will reduce his strength and general vitality, as will appear in his pale complexion and his diminished appetite.—T. M. Coan, M. D.

CLEANLINESS

NEED for the lesson on cleanliness is more imperative in some schools than in others. The children can be inspired to work reforms in the home where needed.

At Hull House, Chicago, the children near the Settlement come for free baths once a week.

At first, many came with no change of underclothing with which to replace the soiled garments.

After a time, nearly all came with the desired articles.

The children saw that it was customary to make a change, appealed to the mother, and in most cases with success.

If we make cleanliness fashionable in a school it will have its devotees.

CLEANING OF THE EARTH

In March the earth is very dirty.

Something came and began to clean it. What was it?

What did the wind do to clean the ground?

We do not always like the strong March winds, but the earth needs them to do the cleaning we can not do.

Sometimes ice and snow are left in spots. What takes them away?

Then what comes and washes the earth? Is one washing enough?

Will the earth stay clean all summer? No, it needs to be washed often.

CLEANING OF THE HOUSE

A little later we have every part of our houses cleaned.

Will they stay clean the rest of the year?

No, we must do *some* cleaning every day.

CLEANING OF THE BODY

I think each of you can tell me what house each of you has to keep clean. You are the housekeepers.

How often should you clean your house?

BATHING

Do animals bathe?

Does the dog?

Does the cat? Why not? (Show that the cat's hair is so fine and thick that it would not dry quickly.)

Kitty never forgets to wash herself or her kittens. Her tongue is so rough that it cleans her fur thoroughly.

Please tell me how a bird bathes.

I wonder if you have ever seen a bird take a dust bath?

Some birds will sit in the dust and flutter their wings until the dirt sifts through their feathers. (The rough dirt cleans off something that water will not take off.)

People sometimes keep animals in places that are not clean. Animals like to be clean and should always be well cared for.

(Speak of good rules for bathing and when baths should be taken.

Caution against going into the water directly after eating, or staying in too long.)

We should never go to bed with dirty feet.

CLEAN CLOTHES

A clean body says, "Give me clean clothes." With a little care we can keep our clothes clean. That helps mother.

CLEAN HAIR AND EARS

How shall we keep our hair clean?

You need to wash the outside of your ears often. Let mother attend to the inside.

CLEAN TEETH AND NAILS

How shall we keep our teeth clean?

How shall we keep our nails clean?

(In the poorest homes there is often only a pin at hand with which the child can clean his nails.

Wooden toothpicks are inexpensive. It would be well to give a small bunch to the child who is neglected at home. The corner of a card will answer.)

USE OF DOOR MAT

Have you a mat outside your door? What is it for? Is there one in our hallway? Every one who remembers to use it helps to make a pleasant schoolroom.

Every child who keeps the floor clean near his desk is a helper. What can you do to keep the schoolroom clean?

How can you freshen your clothing at night?

THINGS TO REMEMBER

Animals like to be clean.

If we wish to be healthy we must be clean.

We should keep every part of the body clean.

We can help keep our homes clean.

We can help keep the schoolroom clean.

The clean man, other things being equal, will be the healthy man and the moral man. To attain this condition he must secure pure air, pure water, cleanliness in and around the house, cleanliness of person, dress, and food, cleanliness in life and conversation.—SIR LYON PLAYFAIR, in *Journal of Hygiene.*

Touching the matter of person, the tobacco habit is unclean; touching the matter of health, it weakens many; touching the matter of morals, it belongs to the things of darkness.—B. L. WHITMAN, Ex-Pres. Colby University.

THE SKIN AND CLEANLINESS

THIRD YEAR

NOTHING is more attractive than personal cleanliness. No matter how plain the clothing, how irregular the features, if an air of cleanliness pervade a person he is at once attractive.

Some homes are so lacking in the things that make for cleanliness that it is almost hopeless to expect to receive children from them who are cleanly.

Do not despair; if the children can not work a reform, you may enable them to "build better" when they have homes of their own.

Children observe the teacher's dress, and a silent lesson may often be taught by the teacher who is always dainty in personal appearance.

Blessings on the shirt waist which has done so much to promote cleanliness.

COVERING OF FRUIT AND ANIMALS

We will talk today about the covering of things. Everything has a skin or something that takes the place of a skin. We will talk of the use it is.

What does the skin of apples and other fruits do for them?

(Show that the pulp would be soiled and dry if it were not for the skin.)

(Show a walnut or any nut with outside shell on it.)

This nut and some other kinds have two shells, one holds the meat, the other stays on until the nut is ripe, then falls off.

The outer shell keeps squirrels from eating the nuts before these are ripe. They do not like the taste of the outer shell.

Has a tree a skin? What is its name?

Each creature has the kind of skin that suits it best.

Why do sheep have wool growing from their skin?

(Bring out the additional fact that sheep often wander through the bushes, whose thorns would tear their skin.)

Sheep dogs have shaggy, coarse hair. Why?

What kind of a skin does a snake have?

Why does he need a scaly skin?

What kind of a skin does a fish have? Why?

Have you a scaly skin? It does not look scaly but it is. The scales are so small that you can not see them. They overlap each other like the shingles on the roof of a house.

If you look inside your stockings at night, or shake your underclothing, you will see the small particles fly.

CHAPPED HANDS

Sometimes in winter the cold weather dries the skin, and the scales peel too fast. We say the hands are chapped.

Vaseline, or glycerine and rose water, used when going to bed or after washing the hands will help them.

We should be careful to wipe the hands dry in cold weather.

OUTER AND INNER SKIN

We have two skins. The one we see is a covering for the real skin. It has no feeling. How does this help us?

The skin below the outer skin is full of blood-vessels, and is easily hurt. What do the blood-vessels do for the skin?

Can you see the small holes in your skin? What do you call them?

Little tubes go from the pores into the body. What do they bring to the surface of the skin?

WHAT THE PERSPIRATION DOES

When you have been playing hard or exercising, these tubes bring a great deal of perspiration. The perspiration carries from your body what is no longer of use to it, just as ashes fall from the grate.

Even in winter, perspiration passes off, but sometimes it dries so quickly that you do not notice it.

Should the pores be kept open or shut?

What do you think will close them?

EFFECT OF DUST AND DIRT UPON THE PORES

Dust from the room and street fills the pores no matter how careful we are. Frequent bathing will keep the pores open. (Give simple directions for bathing.) Speak of the need of having the feet clean on going to bed.

When you have been exercising and are perspiring, should you stand or sit where the cold air will blow upon you? Why not? Should you wear rubbers in the house? Why not?

TOBACCO

What did you learn last year about the effect of tobacco on the skin?

THINGS TO REMEMBER

People and animals are covered with skin.
There is an outer and an inner skin.
The outer skin has no feeling.
It protects the inner skin.
The skin has a great many pores.
They should be kept open.
We should bathe often.

(When the hands are badly chapped and have become grimy, the teacher may suggest washing them in warm water, Indian meal, and a little soap. When clean, rub cold cream well into the skin.)

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Death is strong, but life is stronger;
Stronger than the dark, the light;
Stronger than the wrong, the right;
Faith and Hope triumphant say
Christ will rise on Easter Day.

—PHILLIPS BROOKS.

WHO IS RESPONSIBLE

WHOEVER is familiar with the history of this nation can not fail to see that in the plan of God this country is dedicated to human liberty. The men and women who came over in the Mayflower in search of religious liberty, were loyal to all that that priceless boon cost.

Their descendants one hundred and fifty years later represented the spirit of their sires in the seven years' struggle that gave this nation political liberty, and their grandchildren did not falter in the four year's conflict that gave individual liberty to America and broke the chains of human chattel slavery.

It has always been the pride of the American that the people in every case have been loyal to the duty devolving upon them for the maintenance and extension of the various phases of liberty which this nation has achieved. Thus the stars and stripes today represent religious, political, and civil liberty.

Shall the people of this nation which has achieved so much ultimately perish, victims of alcohol slavery?

The legislature of every state and the National Congress have provided that the people shall not perish in this way, by enacting laws which require in all public schools the study of the physiological reasons for obeying the laws of health, including those that teach total abstinence from alcoholic drinks and other narcotics.

The inforcement of these laws is in the hands of local school commissioners, superintendents, school boards, and teachers. History is holding a suspended pen above its unwritten pages on this question. Can the men and women intrusted with the holy duty of inforcing these temperance education laws say to the men of Valley Forge, Antietam, and the Wilderness, "You did well your part in your day to maintain the phase of liberty then endangered. The hosts on hosts of abstainers from the enslaving cup of alcohol who are now outlawing the saloons are proof that we are striving to do our part in making this nation a strong, achieving people, free from the alcohol slavery that has been the bane of so many nations.

This is a question that will have to be met in the grand review of results of individual action.

There are four essentials to the inforcement of our temperance education laws:

1. A course of study in this branch providing for not less than two or three lessons per week for ten weeks of each of the three primary years, and three or four lessons per week for ten weeks of each school year above the primary, ending with the ninth year or with the first year of the high school; the lessons to be taught according to the best modern methods, as in other branches.

2. Indorsed text-books adapted to grade in the hands of all pupils using text-books in such other studies as geography or arithmetic with oral lessons for pupils unable to read and an oral lesson book for primary teachers.

3. Examinations or tests for promotion in this as in other studies.

4. The interested teacher.

In a large majority of cases where we have the first three essentials, we have also the last; for the teachers of this country as a whole are ready to do their part if they are given material to do with and time in which to do it.

When you, members of the school boards, superintendents, and other school officials, sit in deliberation over the question as to whether you will, by providing these four essentials, secure that teaching which is making us one of the most sober and achieving of nations, stop and consider, if you are tempted to neglect these means of educational grace, what answer you will give to the heroes who in the past have been loyal to the utmost duty demanded of them for the defense of the phase of freedom for which they suffered and fought.

There were camp-followers on the Mayflower, Tories, and a Benedict Arnold in Revolutionary days, and Copperheads in the Civil War; nevertheless, God's great purpose of liberty for this nation was carried out.

But no halo gathers about the names of those obstructionists who lost the opportunity of a life time of working together with God for the accomplishment of His great plans.

(Continued on third page of cover.)

Grammar Lessons

SEVENTH OR EIGHTH YEAR

CIGARETTES AND TOBACCO

IN July, 1902, almost without warning, the famous old Campanile of St. Marks, Venice, suddenly collapsed. This costly and beautiful bell tower, begun in the tenth century and finished in 1517, had for almost four hundred years defied the wreck of time.

What had now brought the brave structure so low? Skilled engineers and architects consulted together and sought to answer the question. The weakness was not in the superstructure, but searching through the ruins they found that its base had been undermined, and but for this weakness it might have stood for many years to come.

Through the centuries the Campanile had charmed men with its beauty and its chiming bells had reminded them of their religious obligations, but both its beauty and its usefulness were brought to an untimely end by the treacherous undermining of its foundations.

The story of the fall of the Campanile is also the story of many a ruined life.

Nearly or quite a third of a lifetime is consumed in laying the foundations of the physical, mental, and moral natures of a human being, and the beauty and usefulness of the whole after-life depend upon whether these foundations are firm and strong, or whether they are being undermined by folly or vice.

Today there are more than 10,000,000 boys of school age in our land, to a large part of whom will come temptations to the use of tobacco, the most common and dangerous form of which is cigarettes.

Nothing is more surely sapping the foundations of their future usefulness and thus undermining the vigorous manhood of our race, than this vice of cigarette smoking among young boys. One has but to read the papers to learn of the mental inefficiency, the physical degeneracy often ending in insanity, and the actual criminality of mere youths who are what we commonly call "cigarette fiends."

Our hope of better things lies in the schools. Every teacher has it in her power so to teach the dangers in the use of tobacco and cigarettes that boys will clearly understand how both weaken the foundations of their physical, mental, and moral natures and thus undermine their chances for success in any line of business, scholarship, or art.

As preparation for this lesson the teacher may provide herself with one or more good pictures of the Campanile of Venice and ask some member of the class to bring in a brief sketch of this famous bell tower which may be read or recited. The facts of its having required almost 600 years in building, and that its destruction was brought about by weakness in the foundations should be especially commented on.

How many years does it take a child to get his growth? Which years are these? If his body is not well grown when he is 21 or 22 years old, can anything be done to repair the mischief? Why, then, is it so important to form right physical habits in youth?

Ask the class to mention some of the things which are necessary to healthy growth. These will include good food, pure air, proper clothing, plentiful of restful sleep, and abstinence from harmful drugs, the most common of which is tobacco.

HISTORY OF TOBACCO

Briefly review the history of tobacco, and point out that the tobacco habit is one that was borrowed from a barbarous race, the Indians; that when introduced into Europe its use was forbidden by the King of England and by the church. Have some one look up the poisonous properties of tobacco and tell what dangerous gases are liberated in the smoke.

Show that while some other drugs are used as medicine by physicians with good results, tobacco is never so used, and that no antidote is known for tobacco poisoning. Recall cases where people have been poisoned to death by swallowing tobacco.

What are the effects of its first use? Point out that the dizziness, terrible nausea, low pulse and collapse that usually follow a first attempt to use tobacco are symptoms of severe poisoning, and that the system thus makes agonized efforts to warn and save the user.

Find out from books why it is that when a person becomes accustomed to tobacco it does not always appear to harm him.

Discuss the special evil effects from each of the usual forms of tobacco using; the pipe, cigarette, cigar, chewing, etc., paying especial attention to the fact that the cigarette smoker nearly always inhales the smoke, thus injuring

the delicate membranes of the lungs and also poisoning the blood with carbon-monoxide gas.

Write the following, or a similar list of topics, upon the board or upon slips of paper, and assign one or more to each pupil who is to learn what he can from books and all available sources and recite it in class.

TOBACCO UNDERMINES THE PHYSICAL SYSTEM

Effects on Lungs
Effects on Heart and Blood
Effects on Digestion
Effects on Brain and Nerves
Effects on Special Senses
Tobacco retards growth
Cigarettes cause insanity
How the use of tobacco leads to drinking
Tobacco predisposes to disease
Hereditary effects on the children of tobacco-users.

The teacher should be thoroughly familiar with each topic, and prepared to drive home the lesson that tobacco, and particularly cigarettes will certainly undermine the foundations of the boy's health and strength and poison his system throughout. The authoritative quotations may be written on the board and discussed, and some of them may be committed to memory.

"Music, that audient outlet for the soul,
Comes in and grief goes out, and Life is whole."

TOBACCO UNDERMINES THE MENTAL POWERS

Having carefully considered the way in which tobacco and especially cigarettes undermine the physical system, take the subject of its undermining effects on the mental powers.

Review briefly the effects of cigarettes upon the brain, nerves, and special senses, and make it clear that as tobacco contains a narcotic poison, nicotine, it has, in time, a stupefying effect on the nerves and brain. The more delicate the nerves the greater is the injury.

Show how mental ability depends upon quickness of perception, the memory, judgment and power to concentrate the mind upon the task at hand, and then make it clear that tobacco impairs each of these to a greater or less degree, according to the individual and amount of indulgence.

The teacher must be prepared to answer the objection likely to be made at this point, that many professional men use tobacco, and not a few great men smoke cigars.

This objection ought to be fairly met and thoroughly discussed.

Point out first that most eminent men who are smokers did not use the weed until they were grown, and that probably not one of them would advise a boy to use tobacco in any form.

Point out also that great men as well as the humbler devotees of tobacco have often paid the extreme penalty of their vice. Gen. Grant, the hero of many battles, was slain when but little past his prime by cancer of the throat which, in this case as well as in that of Emperor Frederick of Germany, was caused by tobacco poisoning, and the novelist Stevenson, as Dr. Chas. H. Shepard tells us, smoked himself to death.

Make it clear that the great men who were tobacco users were great in spite of the vice and not because of it; great in many respects but not great enough to escape bondage to a filthy habit.

Show that "it would be as reasonable to call epilepsy 'harmless' because Caesar and Napoleon and Charlemagne were epileptics; to say that scrofula helps the literary judgment because Johnson and Pope were scrofulous; or that nervous debility makes philosophers because Kant and Herbert Spencer were neurasthenics, as that tobacco is harmless because some otherwise great men have been its slaves."

"Because a ten-talent man is great enough to override a vice, it proves neither that the habit is a good thing nor that a one-talent man forming it would not be more than ever incapacitated."

Refer to the many investigations in schools and colleges all of which tell the same story of intellects dulled and even ruined by cigarettes. For instance:

P. L. Lord, in an article in the teachers' *Institute*, speaks of a certain school of 500 pupils, graded up to the ninth, where it was found that

the boys were very inferior to the girls. Looking for the cause the teachers found that a large majority of the boys were smoking cigarettes.

Careful investigations covering several months, in which 20 "cigarette fiends" were compared with 20 non-smokers, showed that while 95 per cent of the abstainers were reasonably sure of getting a good education, only 5 to 10 per cent of the smokers stood any show in school; they were two and one-fifth years behind their grade, and three years behind the girls who started with them. Out of the 20, 10 are confirmed truants, 18 have low rank in studies, only 2 are fair and none are excellent. All but 1 had been demoted, and they had failed of promotion from 1 to 10 times each.

Some of our colleges have forbidden students to use tobacco, and it is said that for 50 years no man at Harvard who was a tobacco user stood at the head of his class.

Ask the class to inquire how many graduates from the high school can be found who were tobacco users when they entered the grammar school. Some educators say the thing has not been, and can not be done.

TOBACCO UNDERMINES THE MORAL NATURE

Hon. George Torrance, Superintendent of the Illinois State Reformatory says that his long experience leads him to the conclusion that nine-tenths of the crimes committed by boys under 15 are due to cigarette smoking. Of 278 boys between the ages of 10 and 15 sent to the state reformatory, 92 per cent were cigarette smokers, of whom 85 per cent were already "cigarette fiends" at the time they committed the crimes for which they were committed. He says:

"If there were nothing more harmful than the associations generally formed by the young boy beginning with his first cigarette, that alone would often prove his downfall. He realizes that he must take his first smoke in secret, and in order to do this he generally finds companions who are victims of the habit and who have already taken their first downward step.

"But this is not the most harmful effect. I assert, unhesitatingly, that the use of cigarettes affects the nervous system, weakening the will power, and destroys the ability of the boy to resist temptation, and because of this he easily falls a victim to those habits which not only destroy the body, mind, and soul, but irresistibly lead him into a violation of the laws of the state."

Read and discuss the above statements with the class, and by questioning bring out the facts that a boy, in order to begin to smoke cigarettes, must deceive his parents, for they will not allow it if they know it; that the boys who have already formed the habit, and to whom he goes to learn, are often vulgar, deceitful, liars, and even drinkers and petty thieves, and teach him the same vices; that the habit weakens his self control so he is not able to resist temptation, and thus he is led on till he often becomes a willing tool of older criminals, and is sent to the reformatory if not to prison. Show how the last is the logical conclusion of the first, but do it inductively.

Clippings from papers and personal observation will furnish other material showing that the use of tobacco corrupts the moral nature to a greater or less degree.

TOBACCO UNDERMINES BUSINESS PROSPECTS

Dr. Winfield S. Hall, in a personal letter to young men gives a life sketch of two young business men which, representative heads of business houses say, presents typical cases of the young man who uses tobacco and the one who does not.

He says that every young man desires success and in these days of strong competition it means: *honesty*, *industry*, *temperance*, and *economy*.

Two young men of equal age, experience, education, and ability, both of whom are honest, industrious, total abstainers, and economical, enter the employ of a large city firm. They start at $10 per week. Each pays $6.50 weekly for necessary living expenses and $82 yearly for wardrobe.

Mr. Jones, feeling that he can afford some of the "pleasures of life," buys five 5 cent cigars daily, smokes three, and gives away the others to patrons of the firm or companions. He spends his early evening hours smoking with friends.

Mr. Brown spends no money for cigars. After dinner he takes a brisk walk for an hour with some congenial friend, and returning to his room with mind clear, alert, ambitious, studies books and general literature which will make him bet ter fitted for questions which may arise in the firm.

By the end of the year Mr. Brown has $100 saved which he puts at interest. Each has done well in business.

Both enter the second year with a salary of $12 and their scale of living expenses remains about as before, except that Mr. Jones feels that he is able to smoke a better brand of cigar and buys them by the hundred for "economy's sake." He spends his evenings wondering if his firm appreciate his services.

Mr. Brown continues to spend at least two hours each evening in studying statistics, market reports, and various matters pertaining to his business.

The beginning of the third year finds them each drawing a salary of $20, and that year for both is much like the preceding. Mr. Jones seems to be more prosperous but has saved nothing yet, for his surplus money has gone up in cigar smoke and his time has been frittered away in the process; he is living up to his last dollar and thinks himself very economical to live on so small a salary; while Mr. Brown has $500 on interest and is now well informed on tariff, commerce, etc.

As the third year draws to a close, both are sent to neighboring states to consummate difficult deals of considerable importance. On such an errand 25 cent cigars and 15 cent wit stand a poor show in a contest with a thorough and ready knowledge of every detail of the great deal. Mr. Brown surprises himself and his firm by the skill with which he consummates his deal, and enters his fourth year as manager of a department at $2,000 and a percentage of the profits of the business, while Mr. Jones continues at $20 per week.

"Love unbars the doubter's prison,
Faith assures us Christ is risen."

Every large city sees this little drama repeated over and over again, perhaps requiring a longer time but always with the same results.

Dr. Hall, in closing, says: "Tobacco does more to undermine the success of young men than does any other one factor."

Read or tell this story to your class and invite a discussion. Why is Dr. Hall's quotation true?

Point out that tobacco is the entering wedge of two lines of dissipation. One is dissipation of cash for things unnecessary, the other sense gratification. Show that it is the soothing action on the nervous system that gratifies the senses, and just here lies danger to the young man's business success, for it steals away his vigilance and alertness and handicaps him in the sharp competition of business life.

Make it plain to your class that these are the very least ill results that may follow the moderate use of tobacco. Then, looking further, show that the use of tobacco often paves the way to other dissipation by requiring compensating stimulant. Bring out the fact that used in the greatest moderation, and without considering the effect on the health, tobacco effectually undermined this young business man's career.

Then show what would have been the probable results had he used cigarettes freely. Bring out the fact that had he been a cigarette user before beginning work here he would scarcely have got the place, and by discussion and questions show how many great business concerns refuse to employ in any capacity a boy who uses cigarettes.

AUTHORITATIVE QUOTATIONS

CIGARETTE SMOKERS BARRED OUT BECAUSE UNTRUSTWORTHY

Director Harriman of the Union Pacific Road said their company might just as well go to the county lunatic asylum for its employes as to retain a cigarette smoker in its employ.

Under no circumstances will I hire a man that smokes cigarettes. He is as dangerous on the front end of a motor as the man who drinks; in fact he is more dangerous. His nerves are bound to give way at the critical moment.—SUPT. LINDELL St. R. R., St. Louis, Mo.

This obtunder of moral discrimination [tobacco], to repeat again familiar facts, weakens the memory, vitiates the appetite, produces vertigo, enfeebles the action of the heart, depresses vitality, leads to intemperance, arrests development, causes insanity, loss of sight, deafness, laryngitis, and cancer of the lip.—MATTHEW WOODS, M. D, Member Am. Med. Ass'n.

In these days of active competition it is the best brain that wins, and the man who knocks out his brains with tobacco is knocked out of the contest for supremacy in any field of activity. When a young man applies for a job, he is practically renting his brains, and no employer cares to hire a damaged set when he can get

a clean set just as well.—WILLIAM ALLEN WHITE.

The [cigarette] smoke when inhaled is brought in contact with over 500 cubic feet of surface in the lungs, with immense facilities for absorption, and at once the nicotine is deposited in a fruitful field and incorporated in the blood."—HEBER BISHOP, M. D., Boston.

CHILDREN INHERIT EFFECTS OF TOBACCO

A clergyman denied the ill effects of tobacco using, asserting that his father had always smoked and at 93 was still vigorous. But the clergyman at 61 was a nervous wreck, and his son, the grandson of the vigorous old smoker, was obliged to leave college at 19 because of nervous exhaustion.—E. A. KING in *The Cigarette and Youth.*

I am informed that boys as young as 7 years begin to smoke [cigarettes]. If we neglect them at that age they will be ruined for life. If a boy begins before he is ten years old he will never be able to graduate from a high school. This is due to the fact that smoking at that age makes his brain dull, and being inactive he is unable to study the required branches properly in the advanced schools.—C. E. STEVENS, Supt. of Schools, Stoneham, Mass.

TOBACCO IMPAIRS THE NERVOUS SYSTEM AND THE INTELLECT

The use of tobacco in any form previous to 16 years of age has an undoubted tendency to lower very materially the mental force and acumen, and to render the user a person without ambition, and may even cause insanity or idiocy.—N. B. DELAMATER, M.D., Specialist in Mental and Nervous Diseases.

Boys who have used tobacco freely are thin, anaemic, and neurotic, and are often undersized. —GEO. H. CATTERMOLE, M. D., Prof. of Pediatrics, University of Colorado, Denver.

It is positively harmful and detrimental to the development of the physical and mental powers of our growing youth. Statistics show most markedly the contrast in physical and mental standard between the boy who uses tobacco and the one who does not.—L. D. MASON, M. D., Brooklyn, N. Y.

TOBACCO INJURES THE HEART

Nicotine alters the structure of the heart by causing a change of its muscle fibers into fat, leading to weakness, fainting, and sudden death. —E. CHENEY, M. D., Boston.

Habitual smokers often suffer from palpitation of the heart, and from intermittent pulse. —Prof. H. N. MARTIN, A. M., M. D., Late Prof. of Physiology, John Hopkins University, Baltimore, Md.

TOBACCO DOES NOT PREVENT DISEASE

The idea that tobacco prevents disease is an error. A tobacco user's chances of recovery from malignant disease are lessened 50 per cent. —O. M. STONE, M. D., Boston.

I have seen bright boys turned into dunces, and straightforward, honest boys, made into miserable cowards by cigarette smoking. That I am speaking the truth, nearly every physician and nearly every teacher knows.—A. CLINTON, M. D.

TOBACCO INTERFERES WITH GROWTH

Children who use tobacco before reaching maturity have their growth interrupted, as nothing more definitely interferes with the equilibrium of tissue-building, digestion, assimilation elimination, metabolism, than tobacco.—I. N. LOVE, M. D., Prof. of Diseases of Children, Clinical Medicine and Hygiene, Marion-Sims College of Medicine, St. Louis, Mo.

Tobacco creates thirst and vital depression and to remove these the use of liquors is often resorted to.—JAMES COPELAND, M. D., F. R. S.

EFFECT OF TOBACCO ON THE SPECIAL SENSES

The Superintendent of West Point says that many of the students having developed eye trouble soon after entering the academy, an expert occulist examined the eyes of the students and declared that the weakness of vision was caused by tobacco poisoning from the use of cigarettes before entering West Point.—WINFIELD S. HALL, Ph. D., M. D.

The effect of tobacco, especially if smoked and exhaled through the nose, or snuffed, is to paralyze the sense of smell.—W. H. RILEY, M. D., Supt Colorado Sanitarium, Boulder, Colo.

CARBON MONOXIDE GAS FROM CIGARETTES POISONS THE BLOOD

Two or three mouthfuls of tobacco smoke from a cigarette were shaken up with a few drops of blood diluted with water in a bottle. Almost immediately the blood assumed the pink color characteristic of blood containing carbon monoxide gas. . . . In this experiment we have some explanation of the evil effects of cigarette smoking, for it is chiefly cigarette smoke that is inhaled, an indulgence by which the poisonous carbon monoxide is introduced directly into the blood.—*London Lancet.*

PHYSIOLOGY TOPICS FOR APRIL

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ADVANCED—Sympathetic System. Habits. Tobacco. Patent Medicines.

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(Continued from Page 123)

Last week young men who ten years ago were in your schools were arrested for drunkenness. Some of you called temperance physiology a fad, not worth the time needed for you to outline a scheme for the pursuit of this study in the grades that would have taught them the great danger of beginning to drink. Can you escape responsibility for the lack of knowledge on their part which led to their downfall? The state says you shall impart this information to the pupils in all schools and pays you for doing it.

Who is responsible for the ruin of these young men?

Benedict Arnold could betray his country, but he could not prevent the political liberty which God had in store for this nation. No more can the brewers, owners of brewing stock, the Committee of Fifty, nor any of their subcommittees and sympathizers prevent the dethronement of alcohol. With trumpet, pen, and myriad voices science declares alcohol to be an enemy to human well-being, and nothing can prevent the fulfilment of God's purpose that this saving truth shall reach the people.

This nation will be saved from the thralldom of alcohol, but thousands will be lost because of the indifference of some school officials to their duty in providing for this education for the pupils in all schools, as the laws require.

School officials and teachers who are neglecting this study, ask yourselves who will be responsible for the loss of these who might have been saved had you done your utmost duty.

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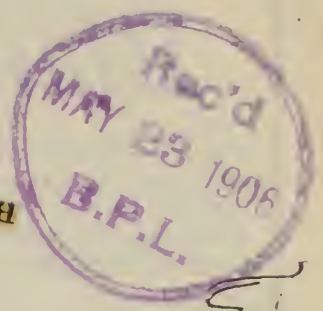

The School Physiology Journal

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VOL. XV. NO. 9
MAY, 1906.

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School Physiology Journal

Vol. XV *BOSTON, MAY, 1906* *No. 9*

THE BROOK

BY ANNA BURNHAM BRYANT

THE trees are white as Christmas,
And gay the carpet green,
With dewy webs of lace at morn
Where fairy folks have been;
But oh, the rill's sweet laughter
As it goes leaping by!
It is a little runaway,
As free and glad as I.

The violet in purple,
The cowslip all in gold,
With all their friends have come in troops
May festival to hold.
But oh, my little brooklet!
When you come dancing by,
I laugh, for here's a runaway
As free and glad as I.

The soft white clouds go sailing
Through seas of summer joy;
The whole world keeps a holiday
For every girl and boy.
But best I love your laughter,
Dear brook as you go by;
You're just a happy runaway,
As free and glad as I!

SCIENTIFIC TEMPERANCE INSTRUCTION AND THE COMMITTEE OF FIFTY IN GERMAN EYES

BY ERNEST GORDON

THE Berlin medical publishers, Urban & Schwarzenburg, have just issued (with the support of the Royal Academy of Sciences) a complete bibliography of recent scientific studies (books, monographs, reports, etc.), of the alcohol question. It was prepared by the Swiss Dr. Abdenhalden with the aid of sixty co-workers, and contains only titles and brief explanatory notes. It fills fifty odd pages,—a fact which indicates the immense extent to which continental investigation has of late years occupied itself with this matter. The writer can not claim to have even nibbled about the edges of this vast literature, but from what he has read he is satisfied that its trend is not only in the direction of absolute abstinence, but towards the most drastic remedies any American prohibitionist would suggest.

Over against this huge and weighty product of German patience and honest German scholarship we have, as our American contribution to the study of this subject, the reports of the Committee of Fifty—gentlemen, as Professor Peabody explains, of "the most diverse religious faiths." The contrast is simply astonishing. The group, so the publishers announce, contains "some of the ablest thinkers of America." Yet they and their associates are apparently as unconscious of the remarkable anti-alcohol movement among European scientists, as any assemblage of Hunan mandarins, in horn spectacles and with long grown, carefully tended finger nails.

I was talking some weeks ago with an eminent physician of Dresden who is one of the newer and more radical recruits to the prohibition cause. He has recently started a quarterly for the study of alcohol and its action, with the collaboration of such well known men as Professor Fränkel of Halle, Professor Gruber of Munich, Professor Harold Westergaard of Copenhagen, Dr. Guttstadt of Berlin, Professor Binswanger of Jena, and twenty or more others. I asked him, on looking down the list, how many could be fairly called prohibitionists. He drew his pencil under certainly half of the names, in reply. This gives again some conception of the extent to which radical ideas have begun to penetrate the world of German medicine.

Then he picked up the small volume which summarizes the work of our fifty American investigators, and turning to the Billings report he said, "I hate the Committee of Fifty." He went on to characterize in stinging words its pretentiousness, its assumption of preternatural fairness, its mean references to the temperance ladies, and its ignorance of the results of contemporary research.

He dwelt on the significant fact that the Committee should have selected a chemist, and not even a physiological chemist, to consider an intricate physiological problem.

He referred to the conclusions arrived at, of which we have heard so much in our thoughtful American press. "Alcohol a food indeed because it is a fat-saver! The discoverer of this 'fact' does not seem in the least to realize that the fat saving is pathological and not physiological." As you travel from the beloved Fatherland down to Constantinople, you remark that the vast bellies of Germany and Austria disappear on entering Moslem territory and the human form takes on its human lines and shape."

Then he animadverted upon the other "proof" of Professor Atwater, based on the oxidation of alcohol in the body. He handed me an address on this phase of the subject by Dr. Hinhede, physician in the Wanderborg Hospital (Denmark) which has recently been sent to every doctor in Germany.

Dr. Hinhede described the action of chloroform, ether, and other "foods" (in the Atwater sense) which also are oxidized in the body. He dwells on the relation of alcohol to this group, and comes to the conclusion that the excitation which the champagne drinker feels at a banquet is directly comparable to the heightened gaiety of the alcoholized patient whom the doctor finds it so difficult to chloroform before an operation. In other words, he classifies our American "food stuff" with the narcotic poisons.

But on no point did the Dresden doctor speak more strongly than on the attack which the Committee of Fifty have made on the American system of scientific temperance instruction. He pointed to Dr. Billings' slur on the American text-books as "pseudo-science" and said: "But does your American doctor know that these books are based on the studies of Professor Fick of Wurzburg, of Weichselbaum our great University of Vienna anatomist, of Von Bunge the physiological chemist, and of others equally eminent? If he characterizes their conclusions as 'pseudo-science' what language does he suppose they would use to describe his ridiculous statement that 'salt, ginger, tea, pepper, etc., can be called poisons with equal propriety' as alcohol?"

Then he went on to express his admiration for the great organization of American temperance women and for all it had accomplished toward the enlightenment of public opinion in the enormously important alcohol matter. He wished only that the women of Germany could be brought up to the same level of intelligent activity against the race poisoning which the brewers are carrying on. Then, turning to a group of ladies and gentlemen standing near, he introduced me as one who was acquainted with Mrs. Hunt and her work for temperance. It was gratifying to hear the interest expressed in that remarkable woman, to whose credit must be set down the weightiest piece of constructive statesmanship which our country has brought into being in the last two decades.

One of the Committee of Fifty declared some time ago that the temperance women "were doing the work of the devil." That is not the opinion of many equally qualified to judge. Thus Dr. Max Gruber, who occupies the chair of hygiene in the University of Munich, wrote recently: "According to my judgment, science must esteem and praise as its most valuable allies, those who out of love to their kind take upon themselves the heavy task of day by day fighting the fight against drink."

The investigations on the continent have borne their practical fruit in the remarkable movement of the English physicians in behalf of temperance instruction in the schools. That more than 15,000 physicians headed by such eminent men as Sir Lauder Brunton, Sir Victor Horsley, Sir William Broadbent, Dr. Sims Woodhead should petition the government to introduce the American system into English schools is a fact which should make Professor Sedgwick of the Technology Institute pause in his efforts to rescue the schools "from being the battle-ground in the contest between saloon-keepers and the Woman's Christian Temperance Union."

Lord Londonderry, a true representative of the English *beerage*, turned down the petitioners as a matter of course. But the new liberal government, whose almost first bill in Parliament was one providing for the feeding of hungry school children, will without doubt accept the proposal of the physicians, and in this way give a serious blow to that institution which drives so many little children to school with empty stomachs.

England lies nearer the continent and has therefore first felt the impulse of the Franco-German anti-alcohol movement. But it will not be long before our "able thinkers" too will awaken to the fact that they have, in Lord Salisbury's pregnant phrase, "put their money on the wrong horse." If the whole alcohol matter were not so frightfully serious, one might extract a good deal of amusement from the anticipation of that change of front, which "ces ames moutonnieres," as M. Antole France would call them, are bound to make in the near future.

What bewilderment, what a scurrying about when the Hydes and the Eliots, and the rest of the Fifty learn for example that Dr. Triboulet, in his report on alcoholism to "*La Societe des Hopiteaux*, declares that "we are facing the danger of race extinction from tuberculosis, alcohol preparing the way;"—or the fact that the committee appointed by the French Academy of Medicine to report on alcoholism, recommended, *inter al*, that the academy should take a solemn vow to work for the immediate reduction of the number of those same drink shops, which the Report of the Committee of Fifty, according to Mr. Calkins' statement, declares to be "relatively innocuous, purveyors of food, literature and kindly help!"

How different will be the attitude towards the school law of these obstructionists, so ungallant in their references to women's temperance effort, and so mischievous in the perverse use of their prestige which their greater or less success

in various walks of life has given them among the American people, when they realize the position which educationalists, like Professor Hartmann of the University of Leipsig, take.

"Saturate your whole teaching force with anti-alcohol instruction," says he. "Place anti-alcohol books in teachers' libraries, and in those of all universities and polytechnics. See that the subject is discussed by the pedagogic press, at meetings of school directors, and before teachers' gatherings. Secure lecturers of the highest expert knowledge—jurists, physicists, physiologists, to address the combined schools of each city. Introduce the subject wherever possible into the religious classes, the natural science classes, etc. Send circulars home to parents, showing them the danger of alcohol-poisoning to children; and even invite parents together to explain to them the danger of drinking. Urge the teachers to organize for the fight; develop anti-alcohol unions among the school children."

"With the children let us go
Where the star-eyed daisies grow,
In a joyful company."

Another German educationalist, Rector Enking of Kiel, goes even further. We would introduce temperance matter into the reading books, would have drink statistics used in the calculations of arithmetic classes, and would, of course, make the subject an integral and leading feature of the physiological teaching.

One thing is certain. If the brewers of Milwaukee and those among "America's ablest thinkers" who consciously or unconsciously are helping them in their reactionary efforts, hope to destroy or cripple seriously the system of anti-alcohol teaching in our schools, they must be soon about it. The adverse judgment upon alcohol by the scientific world grows daily more decided and indeed more bitter. The opinions of the American Committee of Fifty are, one can confidently say, already as antiquated as any of the Venetian Council of Seventy. If the temperance instruction laws remain untouched five years longer, they will never afterward be tampered with.

BOOK NOTICES

THE BITTER CRY OF THE CHILDREN, by John Spargo. Price $1.50. Macmillan Company, New York.

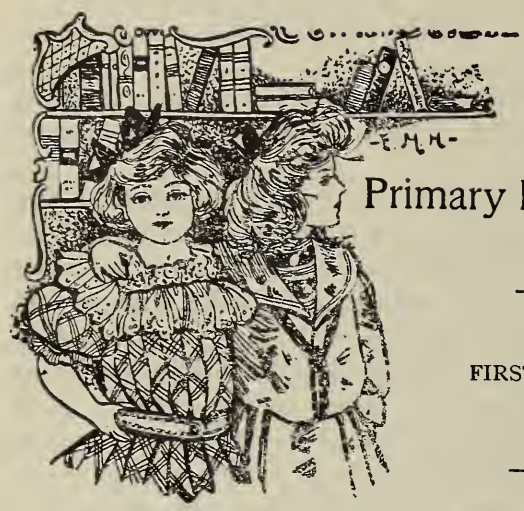
In his attempt to state and to visualize the problem of poverty as it affects childhood, and to show "the measure in which poverty is responsible for the excessive infantile disease and mortality; the tragedy and folly of attempting to educate the hungry, ill-fed school child; and the terrible burdens borne by the working child in our modern industrial system," the author has succeeded admirably. To his own personal experience and observation he has added the result of an extended study of authorities and successful experiments in dealing with these conditions not only in America but in Europe and Australia.

He shows that the children of the nation are capable of expressing all the good or evil possible to the world, that it is essentially a matter of opportunity and environment whether the children of today become physical, mental, and moral cretins, and makes an eloquent plea for the 2,000,000 children between the ages of 5 and 14 who are victims of chronic under-feeding, and the hundreds of thousands of tender years who are working under conditions as dreadful as ever slaves endured.

THE GREGORY GUARDS, by Emma Lee Benedict. Lothrop, Lee & Shepard Co, Boston.

An interesting tale of the adventures of six very human boys the leader and most attractive of whom is Matt Campbell, a city newsboy who in defending his own rights and those of weaker children had whipped every boy of his own size in the locality of his home, and whose push and enterprise were quite as successful in helping him to overcome himself and win friends and business success.

It teaches manliness, and faithfulness to high ideals, without cant.



Primary Lessons

FIRST YEAR

CLOTHING

AT first, it may seem as if the questions of how children should be dressed, and of what material their clothes should be made, were really subjects for the home instead of for the school. But second thought will show that the teacher's influence is considerable.

She can use this influence on the side of suitable clothing, emphasizing not the ornamental value of clothes, and so arousing vanity, but the protection which proper clothes afford.

MATERIAL FOR THE LESSON

For this lesson let the teacher have pictures of sheep and fur-bearing animals. It is often possible to have a piece of sheepskin.

To illustrate cotton and linen, have, if possible, pictures of the cotton and flax growing and specimens of the raw material. Children will also be interested to see the cocoon of a silk worm and some of the raw silk.

ANIMALS' CLOTHING

Do animals have clothes?

What are clothes for? For protection against the weather.

What animal can you think of which has a good warm coat for winter? A dog.

In summer what happens to it? We say he is shedding his coat. Sometimes we shear off the dog's coat to keep him cool.

Do you know of any animal which has a very thick white coat? The sheep.

What does the shepherd do with the sheep's coat in the spring?

What kind of coats do the birds have?

Besides keeping the bird warm, the feathers keep him dry. How?

In cold countries, the animals all have heavy coats of fur. What kinds of fur have you seen?

PEOPLE'S CLOTHES

Why do people wear clothes?

Here is a picture of the Esquimo children. What are they wearing? What kind of a country do you suppose they live in? Why?

Here is a picture of some little Filipino children. What do they wear? What kind of a land must they live in? Why?

Do we wear the same kind of clothes all the year round? What kind do we wear in summer? What kind in winter?

De we wear the same kind on a rainy day that we do when the sun shines? What do you wear in the rain?

Do you wear the same clothes for best as for every day?

We must be very careful of our best clothes, not to soil or tear them.

SENTENCES

We wear warm clothes in winter.
Thin clothes are best for summer.
Clothes are made of cotton and wool.
In winter we wear fur.

WINTER CLOTHING

What kind of clothes do we wear in winter? What are thick clothes usually made of?

Name the different things you wear made of wool. Little children ought to wear warm shirts, drawers, and stockings in cold weather.

Sometimes outside garments are made of fur. Name everything you have seen people wear that is made of fur.

Where do we get the wool to make our garments? Where do we get fur?

SUMMER CLOTHING

What are our summer clothes made of?

Why is cotton, linen, or silk better in summer than wool or fur?

Where does cotton come from?

After it is picked where is it made into cloth?

Where do we get linen? silk?

FIT OF CLOTHING

Our clothes should fit us. If you put on a waist that you wore last year, how does it feel? Why should we not wear tight clothing?

What else besides dresses and trousers should always fit? Shoes. Why should we not wear shoes that are too small?

They make our feet sore and give us corns.

Girls' skirts and boys' trousers should always button to their waists.

CARE OF CLOTHING

When we take off our clothes what should we always do with them? Shake them. Why?

Why should we not leave them in a heap on the floor or a chair?

What should we do with our shoes?

We must always take good care of our clothes, keep them clean, and hang them up.

SHELTER

SECOND YEAR

CHILDREN look upon the home as existing as a matter of course. It does not occur to them, unless suggested, that there are reasons for its establishment and maintenance. By showing what these reasons are, we have taken the first step to enlist their interest and enthusiasm in helping to make the home what it should be.

It is the object of this lesson to show the purpose and universal need of the home, and the part which young people have in its making.

DIFFERENT KINDS OF HOMES

What do people live in? Why do we need houses?

Can you think of any people who do not live in houses?

The Indians used to have no houses. Did they have homes? What did they call them?

There are people in some hot countries that live under a flat roof made of boughs or straw held up by a pole at each corner. Would you call that a house? Is it a home?

Yes, and it may be a happy home, if the people who live in it are kind and helpful. (Describe the home of the Eskimo.)

"This is my Sunday head of hair
All whirly, twirly curls,
A bow of ribbon tied with care
Like all the other girls."

HOMES OF ANIMALS

Do animals have houses? Do some that have no houses have homes?

What animals make their own houses?

What animals have houses built for them.

HOMES OF INSECTS

Sometimes we find insects and worms on goldenrod and other flowers. They stay there all night.

The goldenrod gives them a home and also a breakfast.

NEEDS OF THE HOME

What rooms do we have in our houses?

Which are the most useful rooms?

The Indian has no windows in his tent. How does he get air and sunlight? How do we get air and sunlight?

Sunlight and air are good friends to us. We need both in every part of our houses.

Why should the kitchen be kept very clean?

PIPE AND CIGAR SMOKE SPOILS THE AIR

Would a kitchen smell pleasant that was full of smoke from the stove? Pipe and tobacco smoke spoils the air of a room, and often makes the people who breathe it uncomfortable.

Is it pleasant to have tobacco smoke in any room? What do we need in our sleeping rooms at night?

CARE OF THE HOME AND YARD

What do we call the place in which we keep the dishes?

We have closets for many other things too. How can we make them look neat?

Some people who have a neat looking house have a very disorderly cellar. A damp, dirty cellar may make people ill. Cellars should be kept clean?

Mother may work all day to make the house neat, but it will not look neat at night if the children are not careful to keep it orderly.

What can you do to keep the house neat?

What can you do to keep the yard clean?

CARE OF THE SCHOOLROOM AND SIDEWALKS

The schoolroom is one of our homes. What can we do to keep it looking neat?

What can we do to keep the yard clean?

What can we do to keep the sidewalks clean? We should never spit upon the sidewalk.

People who chew tobacco often spit upon the sidewalk and make it filthy and disagreeable.

We should not forget to wipe our feet when we go indoors.

We need a happy home as well as a neat one.

What can we do to make the home happy?

THINGS TO REMEMBER

A happy home should be neat and clean.
We should speak kindly in it.
We should be helpful.

THE HOME

THIRD YEAR

WHILE great advancement has been made in some sections of the country in improving dwellings, surroundings, and sanitation, we need to exercise care lest the home lose its hold upon the people.

Homemaking is a fine art, and the home should be the place where not only one's family can enter in and rest, but a place where "the stranger that is within our gates" may find rest and refreshment.

A few turbulent, thoughtless children may make what should be a solace and delight a place to be shunned.

Without preaching, we can interest the child in doing his part towards making the home.

PRIMITIVE HOMES

Of what do you think the first homes people ever had were made?

(Bring out the idea of living in a hollow tree, and resting in the branches of trees.)

Why would these homes not be comfortable?

Why were they better than none?

(Bring out the idea of dwelling in caves, of fastening the lower branches of the trees together to form a roof, and lead up to the wigwam, the log house, etc.)

People found it so comfortable to have houses that they kept on trying to make them better.

HOMES OF DIFFERENT PEOPLE

In many countries there are very beautiful houses. Some of them have cost thousands and thousands of dollars.

Who can tell what the home of the people who live in the desert is like?

The home of the Indian? the Eskimo? the people who always live on the water?

HOMES OF ANIMALS

Name some animals that care to have a home. (Speak of the labor and patience of the mother bird and other animals in making a home for their young.)

A HOUSE NOT ALWAYS A HOME

Almost every one can make or get a house to live in, but a house is not always a home.

Sometimes kings and other rich people have been glad to leave their fine palaces and go to a simple cottage where everything was peaceful.

Once there was a Queen of France (Marie Antoinette) who grew very tired of living in her palace where it was noisy and where she had little time to herself.

She asked the king to build her a cottage in a quiet place near Paris. She had watched the country people caring for their cows, making butter and cheese and they seemed to be happier than she was.

The king built the cottage for her among beautiful trees.

She used to go often to this place, tend the cows and make butter. She liked to forget she was a queen.

PEOPLE CAN MAKE A HOME HAPPY OR UNHAPPY

We need to remember one thing. A house does not make us happy or unhappy. It is what the people who live in it do and say that makes home a pleasant or an unpleasant place.

Think of all the things you can do to make home a neat and comfortable place.

Do you like to hear babies cry? Sometimes they can not help it. What can you do for baby if mother is busy? Do you like to hear children cry? Sometimes they can not help crying. Every one is willing to excuse it at such times; but crying does not make the home pleasant.

The home people are often tired. What can you do then?

How should you close the door? How should you step?

If the baby or a person is asleep what can you do?

If you often forget things mother has asked you to do, does that help make a happy home?

Please tell me a few more things you can do to make home a happy place.

CARE OF THE YARD

How do you think the home yard should look? What can you do to make it look neat?

If no one threw papers into the streets, how much neater they would look.

There is a very busy man in the United States (Booker T. Washington) who is at the head of a large school. There are many buildings and workshops belonging to it. He allows no papers to be thrown about.

If he sees any, he will go himself and pick them up, no matter how much he has to do (Speak of marking fences and buildings.)

ALCOHOL MAKES UNHAPPY HOMES

Sometimes people who use drinks that contain alcohol make the home very unpleasant and uncomfortable for other people.

The money is needed for food and clothing. The mother and children are often hungry and cold. (If the school contains a child who comes from such a home, this part of the lesson should be given on a day when he or she is absent.)

THINGS TO REMEMBER

We can help make a happy home.
We can help keep the home clean.
We can help keep it in order.
We can help keep the yard clean.
We can speak kindly.

CLOTHING

THIRD YEAR

COVERING OF BIRDS

WITH what is the bird covered? How does it clean its feathers?

It takes a bath and it also oils its feathers. It has oil in the skin which it takes in tiny drops with its bill and oils its feathers.

You wear a raincoat. The oil on the bird's feathers keeps the rain from wetting the bird's skin.

COVERING OF ANIMALS

Animals have the kind of covering they need.

You have learned that they have thicker hair in winter than in summer.

USE OF CLOTHING

Of what use is clothing to you? It keeps you warm and it protects the skin from dirt and storms. You learned last year that clothing does not make you warm, but keeps your body heat in.

I have written on the board the names of some of the different articles of clothing you wear.

MATERIAL FOR CLOTHING

We will see how many animals or plants have helped to give them to us. (The teacher may write the article of clothing, allowing the children to name the source of supply.)

hat or cap	sheep, straw from the field (silk-worm for velvet hat), etc.
winter suit	sheep
summer suit	cotton or flax plant
winter dress	sheep
summer dress	cotton or flax plant
collar	cotton or flax plant
mittens	sheep
gloves	cotton plant; goat and kids, sheep, and some other animals
underwear	cotton plant and sheep
stockings	cotton plant and sheep
shoes	cow, ox, horse, goat
coats	sheep
rubber coat	rubber tree, cotton plant
ribbon	silk worm

Ready for a good time.

LABOR REQUIRED

(Lead the children to appreciate the labor involved in the preparation of these materials.)

Animals and plants have given us many kinds of material for our clothing. Men and women have worked hard to make the wool and cotton into cloth, the skins into leather, or whatever we need.

After the material was ready to use, mother or some one worked busily to make our clothes.

CLOTHING NEEDS CARE

The best way to say "thank you" for our clothes is to take good care of them. We can try to keep them clean and not tear them.

LOOSE CLOTHING

Clothing should never be too tight in any part of the body. If it is, you should have it made larger.

Wet clothing and shoes should always be taken off and dried as soon as possible.

All clothing should be hung out in the sunshine once in awhile. Why should you not wear rubbers in the house?

(The teacher may speak of the frequent changing of underclothing if it seems desirable.)

THINGS TO REMEMBER

Many animals, plants, and people have helped to give us clothing.

We can try to keep it whole and clean.

We should not wear wet clothing or shoes.

Rubbers should not be worn in the house.

The attention of our readers is called to the fact that bills for the SCHOOL PHYSIOLOGY JOURNAL are sent to subscribers only. No one who has not ordered the JOURNAL need fear that he will be called on to pay for it. If the JOURNAL comes to you regularly and you have not ordered it, it is being sent to you through the courtesy of some friend who wishes to provide you with its help in your school work. All subscriptions, if not renewed, are discontinued as soon as they expire.

Grammar Lessons

FIFTH OR SIXTH YEAR

DIGESTION

FREDERICK the Great used to say that "an army moves on its stomach." The experience of the Surgeon-General of the Japanese Imperial Navy, Baron Takaki, has proved that an army not only moves on its stomach but wins victories against heavy odds.

When he entered the Japanese navy in the early 70's the dietetics on board the Japanese vessels were about like that of the junks and pirate craft of the eastern ocean. It was a common thing when a Japanese ship had been out only a week or two for half the men to be down sick, and not infrequently the captain would be obliged to help make sail.

It did not take the young surgeon-general long to see that if the Japanese were ever to become great naval fighters they must be so nourished that sickness would be banished and they would become capable of great endurance. He immediately began an elaborate series of experiments in diet which were so successful that in ten years, by rigid insistence on this new regime of rations, he had so increased nutrition that the men weighed on an average 8 pounds more than formerly, and disease was reduced to the minimum.

It was agreed by many Japanese officials at the close of the war with China that it was this increased efficiency that made it possible for the small Japanese fleet to defeat the North China squadron.

In the last analysis the man who succeeds is he man who can eat and digest well, for every vital organ depends upon nutrition, and nutrition depends upon the way in which the digestive apparatus does its work.

NEED OF FOOD

Begin the lesson with a discussion of the need of food and bring out the fact by questions and reference to books that foods are required for the growth and repair of the body and for the purpose of furnishing it energy.

Speak of the different parts of the body, such as the bones, muscles, nerves and blood, all of which need food, and point out that because the body has such diversified elements and needs it requires food containing different elements.

Having made it clear to the class why we need food, divide the class into three parts. Let one part write a menu for breakfast, a second part one for luncheon, and the third one for dinner.

Have the best of each set written on the board and see that the menus selected cover all the common sorts of food.

KINDS OF FOOD

By questions and reference to authorities make it clear to the class that although there are so many varieties of food there are really only three main classes: proteids or albuminous foods, fats, and carbohydrates such as sugar and starch.

Write the names of these three classes upon the board and under each the principal foods of that class. The teacher may increase the interest of the class by some simple experiments showing which foods contain starch, sugar, protein, etc. Or she may show little plates containing specimens of foods which furnish considerable quantities of a certain food principle such as:

Proteid. Lean meat, an egg, beans, and cheese, are examples of proteid with which nature makes repairs and forms new material.

Fat. Butter, fat meat, a bottle of olive oil will furnish types of those foods which are sources of fuel for the body.

Carbohydrate. As examples of food giving needed heat and energy show specimens of sugar, rice, and potatoes.

Which of these foods are usually cooked? Why?

The teacher should explain, if the books do not, that most foods are made more digestible by being cooked and many are more appetizing, and that a cheap cut of meat may be made to give much more food than the same amount of money put into a costly cut, if it is cooked properly.

Compare the foods with the bones, blood, or muscles, and show that although foods are to make new tissues, repair old ones, and furnish the force which keeps the bodymachine moving, they must be changed into such form that they can be dissolved and taken up by the parts of the body.

Speak of some things like tea and coffee which do not furnish nourishment and so are waste material. Any such substances make the body work hard for nothing and soon get it out of order.

Alcoholic beverages are in no sense a real food for, although they may be oxidized in the body and furnish some heat, the injury to the body more than counterbalances the slight energy they produce.

DIGESTION BY MOUTH AND TEETH

What is the first thing that must be done to the food to fit it for use in the body? If any child has visited a mill where grains are ground let him describe the way in which the stones move one upon another and grind the grain to flour. What have we for grinding hard foods?

Describe the teeth of the cow or horse. What sort of food do they eat? Have we any teeth similar to theirs? How many in each jaw?

What sort of teeth have the cat and dog? What sort of food do they eat? Do they need any grinders? Why not? Do we have teeth corresponding to theirs? How many in each jaw?

If we have grinding teeth like the vegetable-eating animals, and sharp, cutting teeth like the flesh-eating animals, what sorts of food would we seem to be fitted to eat?

Why is it necessary for people to have more than one set of teeth? If the books do not explain, the teacher may tell the children that every other part of the body can grow larger as the child grows, but the teeth can neither grow larger nor repair themselves, so the little baby teeth must be replaced by larger ones.

The picture of health.

Describe the construction of a tooth and have a drawing made on the board. Discuss carefully the care of the teeth and show that this care, especially in childhood, must include the eating of bone-making food and abstinence from things which injure the growth of sound teeth, as well as washing the teeth carefully twice daily, and removing the bits of food from between them with a wooden or quill toothpick, and silk.

A recent editorial advises that we learn to eat slowly and thoroughly, as slow eating solves one of the problems of health; that in the eyes of doctors three things distinguish the American people especially, consumption, dyspepsia and bad teeth, and all three of these things are intimately connected with the great national defect of too rapid eating.

Discuss this with the class and show that eating in a hurry often causes one to eat soft foods which do not give the teeth anything to do and thus they (the teeth) are weakened, that ill health is caused by an insufficient supply of good blood, and good blood can be produced only by good food ready to be absorbed.

Having discussed the structure, use, and care of the teeth take up the saliva.

What happens in the mouth when we think of some delicacy of which we are fond? Notice where the saliva comes from? How many places in the mouth give it out?

Let pupils chew pieces of cracker until they are dissolved, and note the sweet taste. What change has the saliva made in the starch of the cracker?

Explain to the children that starch is not easily dissolved so that it can be used in the body, but when the starch changes to sugar it is readily assimilated. Make it clear that if the mouth shirks its part all the other digestive machinery will have to do extra work.

Where does the food pass from the mouth? How does a bird swallow? How can a horse swallow when its head is lower than its stomach? Find out from books why the food does not pass down the windpipe which lies just back of the food pipe.

GASTRIC DIGESTION

About how tall are most of the members of the class? Some of them may be about five feet in height. Then they may know that this long food canal which starts at the mouth is about 25 feet long, for its length is generally about five times the height of the person. It is lined throughout with thin membraneous skin similar to that in the mouth.

Let us see what pouches or glands are in this long canal. Show pictures from physiologies. What is the first one called? Let some of the children make drawings of the stomach, pancreas, and intestines upon the board.

What is the size of the stomach and how much does it hold? How much then ought

one to eat? Make it clear at this point that one should never eat all the stomach can hold.

What juice does the lining of the stomach give out? Explain that "gastric" means "of the stomach," so gastric juice is really juice of the stomach. What effect does this acid juice have upon the food? What kind of food does the gastric juice dissolve?

The following simple experiment will add interest to the lesson. At the drug store get a little bottle of pepsin in solid form and dissolve about one teaspoonful of it in half a teacup of warm water. Add four or five drops of hydrochloric acid and the mixture is like the gastric juice. Put some of this prepared gastric juice into a small, wide-mouthed bottle or test-tube, and add a little finely minced white of a hard boiled egg. Keep it warm, about 98 degrees Fah., and shake it gently from time to time. The egg will be dissolved in about an hour.

By what motion does the stomach keep the food mixing with the gastric juice? What doorkeeper has the stomach to keep the food in till it is dissolved? Explain, if the books do not, that when any unfit food, for instance, green apples, is put into the stomach it tries hard to digest it. It can not digest uncooked green apples because they have so much raw starch in them and the muscular walls contract faster and faster till the stomach aches with pain. They must either be thrown up or pass unchanged through the food canal.

Such strong condiments as mustard, pepper, pepper-sauce, and the like are harmful to the stomach. But nothing that can be put into the stomach is worse than alcoholic drinks.

To show how alcohol hinders digestion, prepare two other bottles or test-tubes as already explained, and into one with the egg and gastric juice put beer or wine, and into the other a small quantity of alcohol. Show the class how much longer the food is in digesting when alcohol is present. Put some gastric juice into a test-tube and add a little alcohol. Have the class note that the pepsin is precipitated. Find out from books what effect alcohol has on the lining of the stomach.

Emphasize the fact that although some alcoholic beverages are believed to aid digestion and give appetite, the contrary is really true. In this connection discuss with the class the quotations bearing upon this point given at the end of the lesson.

What is the effect on the stomach of eating between meals? Why should conversation at the table be cheerful? Why not drink ice-water with meals? Why is it injurious to skip some meals and eat very heartily at others? See that the class understand that the mouth, stomach and intestines all prepare themselves to pour out their juices at certain times and work best when those times occur.

INTESTINAL DIGESTION

Describe the small intestine; the large intestine. What organs prepare juices which are poured into the intestines? Describe the pancreas; the liver. Place drawings of them upon the board. What juice is secreted by the pancreas? What kinds of food does it digest?

To show the effects of this juice procure a small quantity of pancreatin from the druggist. Dissolve a few grains in a pint of warm water and add a little common soda.

In one test-tube or wide-mouthed bottle put pancreatic juice and into it some bits of soft boiled white of egg, shreds of raw beef steak or crumbs of cheese. Keep it at a temperature of 98 degrees Fah., and note how these proteids are digested.

In a second tube, test its effect upon boiled starch.

Put pancreatic juice in a bottle or tube and add a little olive oil or fresh butter. Shake thoroughly and note that the oil has been changed to an emulsion. Lather is an emulsion and milk is another.

By these experiments it will be clear that the pancreatic juice is the most important of all, for it digests starch as the saliva does, and proteids as the gastric juice does, finishing any digestion they have left undone, and in addition digests the fats.

What other juices are mixed with the food? What effect does the bile have upon food? What is the digested food now called?

How is the food carried forward for so many feet? Of what use are the crosswise ridges in the intestines? Find out from the book what the villi are and make drawings of them upon the board. Explain how these villi suck up the chyle and how it is taken into the blood to be carried to every part of the body.

AUTHORITATIVE QUOTATIONS

ALCOHOL NOT A FOOD

What does it avail that a little alcohol burns in the body if in burning the mischief it does exceeds the nourishment it furnishes? One may no more speak of the nutritive effects of alcohol than of arsenic or other toxic substances. — A. Forel, M. D. in Report of the VII International Anti-Alcohol Congress, Paris, 1899.

With alcohol, the individual can not do the work that he could with fat or sugar; he lives, as Rosemann shows, on the expenditure of good tissue, of his constitutional albumen.

Alcohol, therefore, can not be considered as a food or as a protective agent: in reality it

is only an excitant; under no pretext can it find a place in a rational diet.—Dr. Pascault, in *La Clairiere.*

No substance is able to undertake the double role of a food and a poison, and for alcohol no nutritive, but only toxic [poisonous] properties can be claimed.—Max Kassowitz, M. D., University of Vienna.

IMPORTANCE OF THE TEETH

Without good teeth there can not be thorough mastication.

Without thorough mastication there can not be perfect digestion.

Without perfect digestion there can not be proper assimilation.

Without proper assimilation there can not be nutrition or health.

Without health what is life?

Hence the paramount importance of the teeth.—Chas. H. Veo, M. D., Boston.

FOOD AND TEETH

If we do not furnish the teeth of the young that pabulum [food] they require, they can not possibly be built up. It is the outside of corn, oats, wheat, barley, and the like, or the bran, so-called, that we sift away and feed the swine that the teeth require for their proper nourishment.—*Dietetic and Hygienic Gazette.*

"I'm to be Queen o' the May, mother,
I'm to be Queen o' the May."

EVILS RESULT FROM HASTY EATING

The American people have become noted everywhere for their way of eating; cramming in haste all kinds and qualities of food into the stomach, not half masticated. Many evils result from this hasty manner of eating.

First, the food from improper mastication is not divided sufficiently for the digestive fluids to gain access and act properly on it.

Another evil of hasty eating is that it is likely to cause the individual to drink largely of fluids to wash the food into the stomach. Two evils result from this: large quantities of liquids of any kind delay digestion because they delay the action of the gastric juice. Its digestive properties are weakened and the absorbents overtaxed.

Another evil most frequently indulged in is that of eating too frequently. Often the first meal is but partly digested when more food is crammed into the stomach, and this is often repeated every few hours from morning till late bedtime, the poor stomach thus having no rest. The eating of fruit, confectionery, sweetmeats, nuts, etc., between meals is very injurious. This practice often begins in childhood, and is continued to some extent through life.—Wm. M. Mason, M. D., in *Dietetic and Hygienic Gazette.*

EFFECTS OF ALCOHOL ON DIGESTION

The moderate use of strong drinks is always unhealthful, even when the body is in a healthy condition. It does not do any good to the digestion, but even interferes with that process; . . . and evils which are usually attributed to other causes often result from their habitual use with moderate drinkers.—Testimony of Six Hundred Physicians of the Netherlands.

Even moderate doses of beer and wine serve to retard and disturb digestion.—G. Von Bunge, M. D.

Sir William Roberts pointed out that the effect of alcohol is to weaken, or at any rate to retard, the process of digestion. That being the case it is surely obvious that its use in cases of slow and imperfect digestion can scarcely be recommended.—G. Sims Woodhead, M. D.

It is strange that wines have received such marked recognition as therapeutic agents, for experiments point to the fact that their power to inhibit digestion, salivary, gastric, and pancreatic, is out of all proportion to the amount of alcohol they contain.—Henry Martin Brachen, University of Minnesota.

The ordinary use of the drug [nicotine] must be extremely destructive to the digestive process—J. W. Seaver, A. M., M. D.

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MARY H. HUNT, EDITOR
HENRIETTA AMELIA MIRICK, Assistant Editor

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PROSPICE

Fear death?—to feel the fog in my throat,
The mist in my face,
When the snows begin, and the blasts denote
I am nearing the place,

The power of the night, the press of the storm,
The post of the foe;
Where he stands, the Arch Fear in a visible form,
Yet the strong man must go:

For the journey is done and the summit attained,
And the barriers fall,
Though a battle's to fight ere the guerdon be gained,
The reward of it all.

I was ever a fighter, so—one fight more,
The best and the last!
I would hate that death bandaged my eyes, and forebore,
And bade me creep past.

No! let me taste the whole of it, fare like my peers
The heroes of old,
Bear the brunt, in a minute pay glad life's arrears
Of pain, darkness, and cold.

For sudden the worst turns the best to the brave,
The black minute's at end,
And the elements' rage, the fiend-voices that rave,
Shall dwindle, shall blend,

Shall change, shall become first a peace out of pain,
Then a light . . . . . .
And with God be the rest!

R. BROWNING.

MARY HANCHETT HUNT

July 4, 1830. April 24, 1906.

WITH profound sorrow we announce the death of the editor in chief of the JOURNAL, Mrs. Mary H. Hunt, at her late residence, 23 Trull St., Boston, Mass.

Endowed by nature with a splendid constitution and robust health, Mrs. Hunt has been enabled to carry to fruition labors that would have been impossible otherwise; but for the past two years her physical strength has gradually grown less, and work that was before a delight came to be more and more of a burden.

Yet she never spared herself. The last public address given by Mrs. Hunt was before the State Teachers' Association of Nebraska in December, 1904, at the close of a long series of public engagements in many states. In April she went to Atlantic City for two months rest, hoping that as heretofore she would speedily regain her wonted vigor. When this did not come, she sought expert medical advice. Specialists pronounced the lameness creeping over her paraplegia, and declared it to be incurable.

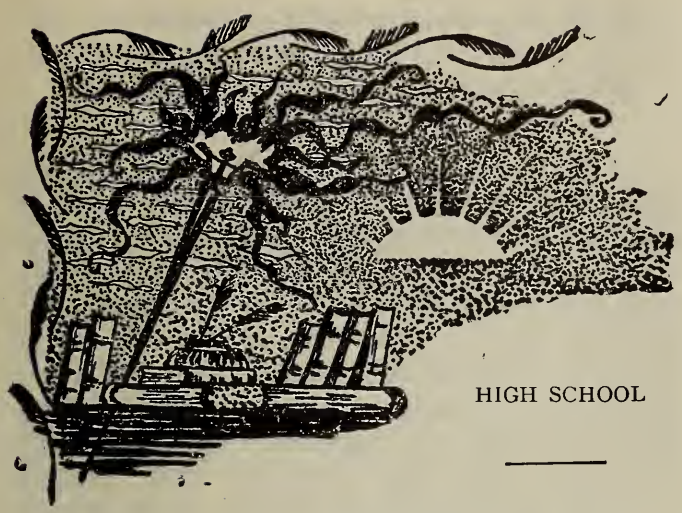
In spite of this verdict she determined to live, convinced that her work was not yet done. Step by step, inch by inch, she fought the last great fight, working up to the limit of her strength each day, using every means that medical science could devise to overcome or delay the bodily weakness that steadily increased. As long as she could hold pen or pencil she wrote, if but a few lines a day. When she could no longer write, she dictated to others till she was unable to speak. Then, for the first time, she felt that her work was done, and she longed to "go home" as ardently as she had before craved the opportunity to labor in the cause to which she had consecrated her life.

Inexpressibly as Mrs. Hunt will be missed in the Woman's Christian Temperance Union of which she was World and National Superintendent of the Department of Scientific Temperance Instruction, in the public press and on the platform, in the church, the home, and in the hearts of thousands who loyally followed her guidance and carried out the plans she formulated, we who have watched her long struggle with increasing weakness can not wish her back. She has nobly earned the "well done" which is hers. It remains for those who are left to carry on in every state in the Union and in the other countries of the world the scientific temperance instruction of all the children. And the letters and telegrams pouring in at the department headquarters are full of promise for the future of this great movement. Individuals and organizations alike are loyally pledging themselves to maintain and continue Mrs. Hunt's far-reaching work. This is the highest tribute to what she has done and is what she would have wished above all else.

The June issue of the JOURNAL will be a memorial number.

HENRIETTA AMELIA MIRICK.

The funeral service of Mrs. Hunt was held in Pilgrim Church, Dorchester, April 26, conducted by her pastor, Rev. Dr. Allbright, assisted by the Chairman of her Advisory Board, Rev. Dr. Plumb, her former pastor, Rev. Dr. Davis, and the Vice President at large of the National Woman's Christian Temperance Union, Miss Anna Gordon, after which she was laid to rest in the family lot at Forest Hills.



HIGH SCHOOL

THE PATENT MEDICINE HABIT

A WRITER in a recent periodical says that "Education is one of the greatest preventives of ordinary disease."

During the last twenty years laws have gone into operation in all the states of the Union, which, by making the study of physiology and hygiene compulsory in all public schools, have been providing for such education as this writer mentions.

The results already observed amply justify the statement he makes, for not only has the increased gain in the healthfulness of the body physical been so marked that a national medical society of American physicians passed resolutions saying that they rejoice in "the evidence that there is better obedience to the laws of health and a growing sentiment in favor of public sanitation and total abstinence," but statistics show that in the decade 1890-1900 there was actually a gain of 4.1 years in the average length of life in the United States. The mental attitude towards disease has altogether changed. This is especially true on the part of the younger and more progressive people.

But not all have as yet learned nature's health lessons, and there are others who, knowing, have disobeyed, so that there are many thousands who are really ill and other thousands who believe themselves to be so.

Furthermore, they have yet to learn that "disease is not an entity to be killed by a shot from a professional [or an unprofessional] gun, but an effort of outraged nature to free itself from an incumbrance, and it should be aided, rather than hindered by the administration of any nerve irritant. There never will come a time when the laws of health can be evaded.

A few days before the lesson is to be taken up ask the members of the class to make some investigations along the line of patent medicine-using. Refer them to the recent series of articles published in *Collier's* and the *Ladies' Home Journal*, to the published accounts of the efforts being made in several states to secure the passage of laws intended to do away with some of the most crying abuses of this evil, and to published analyses of different nostrums.*

Pupils should also examine the advertisements of the various preparations to be found in many newspapers, making a note of the number of diseases which these are guaranteed to cure and the probability of the truth of their assertions.

The day before the lesson, the teacher may write upon the board the quotations given above.

First, discuss the different ways in which education can help to keep us well, and bring out the principal hygienic rules upon which health depends. Make it clear to the class that *drugs never cure disease*. Nature alone has power to heal. In the hands of a skillful physician they may be made to assist, but they *never cure*.

Next, consider what ought to be done in cases of indisposition and sickness, bringing out the point that as illness is the result of unhygienic living, the first thing to be done is to discover if possible what laws of health have been violated and correct the errors which have brought about the sickness.

If the illness is serious and does not yield to hygienic treatment, the patient should consult a properly accredited physician who will be able to make a diagnosis of the case based upon knowledge of the symptoms and the idiosyncrasies of the patient's system.

Impress the class with the fact that no physician of repute exploits his medicines and cures by advertisement, for the ethics of his profession forbid it. If such advertisements appear they present *prima facie* evidence that the doctor (?) thus advertising is a quack who is seeking only to make money and has very little consideration for the health or life of the people.

WHY NOT TAKE NOSTRUMS

The patent medicine habit has assumed such proportions in our country that the legislature of North Dakota has honored itself by passing a law calculated to remove some of the most common abuses of the system, and a number of other states are seeking to place similar laws on their statute books.

That it is high time that citizens, patriotic journals, and legislatures should grapple with this growing evil is emphasized by a statement made by Mrs. Martha M. Allen, National Superintendent of the Department of Medical Temperance for the Woman's Christian Temperance Union, in a book published in 1900. She says that a careful compilation of manufacturers' an-

*"Reprint from the Annual Report of the Massachusetts State Board of Health." For copies apply to National Temperance Society and Publication House, 3 E. 14th St., New York City.

nouncements lists no less than 1,806 of these panaceas sold in open markets in which alcohol, opium, or other toxic drugs form constituent parts.

The sale of these poison-laden medicines to the amount of $100,000,000 each year constitutes a grave menace to the health, sobriety and achieving ability of our American people, and promises a frightful harvest of alcoholics and "fiends" who might never have become such had the true nature of the remedies (?) sought been known.

Discuss with the class the results of their investigations and ask each member to give one or more reasons why patent or proprietary medicines ought not to be used.

Emphasize particularly the dangers of taking drugs, or medicines the contents of which are secret, except upon the prescription of a reliable physician. Point out that in most states there are stringent laws prohibiting any persons who have not completed a prescribed course of study, and are duly authorized, from treating the sick, and emphasize the necessity for such regulations for the protection of the public.

If the teacher thinks it wise, she may touch briefly upon the methods by which testimonials to patent medicines are obtained, the falsity of many of them, and the fact that although some firms advertise free advice and assert that all communications will be held "sacredly confidential," the letters received by them are often sold to testimonial brokers who in turn will sell them to any one at the rate of half a cent each. Young girls and boys, in particular, should be cautioned against writing to such firms.

CLASSES OF PATENT MEDICINES

Patent or proprietary medicines may be divided into three classes:

1. Those which are frauds but are not specially dangerous, except in delaying proper treatment, or to the pocket-book; examples of this class are Liquozone, Vitæ-Ore and some others.

2. Those which are more or less dangerous to health but form no drug habit. In this class may be placed hair restorers, most of which contain sugar of lead or some active lead compound, and cosmetics, the effects of which frequently depend upon corrosive sublimate or some other poisonous salt of mercury. Cases of serious poisoning are reported from the use of such articles. Most of the "blood purifiers" contain iodide of potassium, a medicine of doubtful virtue except as prescribed for particular cases. Shiloh's Consumption Cure is said to contain chloroform and prussic acid, and other medicines might be mentioned under this head.

3. Those medicines which are dangerous to life and most of which may and often do cause drug habits. These include the medicines containing alcohol and those containing subtle poisons like opium, cocaine and acetanilid.

THE ALCOHOLIC MEDICINES

Of the "bracers," or those containing varying amounts of alcohol, the Massachusetts Board of Health (1896) mentions 67 with contents of alcohol ranging from 5.24 per cent to 47.5 per cent and averaging 18.4. Only 8 of these contained as little as 8 per cent, so about 6 out of 7 of them contain more alcohol than the average French, German or American wines. Each of 42 out of the 67 contained a larger per cent of alcohol than the strongest wine (sherry 17.5 per cent), and 5 contained more alcohol than whiskey (35 per cent).

The best known and most widely sold of the "bracers" are Peruna 28.59 per cent of alcohol, Lydia Pinkham's Vegetable Compound 20.61 per cent, Hood's Sarsaparilla 18.8 per cent, and Paine's Celery Compound 21 per cent.

Duffy's Pure Malt "Medicinal" Whiskey which has been lauded by its manufacturers as a remdy for lung and throat diseases, is of course just common whiskey. It is of cheap grade, too, for it is sold over the bar of saloons for only 85 cents per quart.

S. H. Adams in *Collier's* says it is made by a subsidiary concern of the New York and Kentucky Distilling Company, manufacturers of standard whiskeys, which also leases, owns, and controls another "bracer," Warner's Safe Cure, together with all the other Warner remedies.

Another sort of the preparations, the malt extracts, properly belong with the medicines or so-called tonics which may produce alcoholic appetite. These are largely advertised as the most nourishing of liquid foods and a necessity to those in an anæmic condition.

The teacher should point out first, that plenty of pure air and deep breathing, exercise, and plain nourishing food are the best remedies for poor blood; second, that malt extracts are really the dregs of the beer and do not contain nearly so much nourishment as the barley; and third, that according to S. P. Sharples, Massachusetts' "State Assayer" in 1897, an examination of 35 samples of malt extracts bought in original packages in open market showed from 4.27 per cent to 9.86 per cent alcohol, and averaged 6.23 per cent, or about the same as porter (6.63 per cent). This is about 2 per cent more alcohol than is in ordinary beers.

When it is remembered that alcohol, even in small quantities, has the power to create an appetite which may become uncontrollable, it is apparent that taking these alcoholic panaceas as directed in doses varying from one to four times a day, "increased as needed," may make, and often has made drunkards of its victims.

SUBTLE POISONS—DRUG HABITS

Under this head the class may dicsuss the main classes of nostrums which, while not so numerous nor as yet so largely used as those in the alcoholic list, yet constitute an immediate peril to life since they contain such deadly drugs that overdoses producing death are frequent. Moreover, when these drug habits are formed they may be more demoralizing to health and more difficult to conquer than alcoholism.

The teacher should explain also that many people, unknown to themselves, have weak hearts or defective kidneys, hence the use of powerful drugs, except upon the prescription of a physician, is always more or less dangerous.

The first class of medicines may include soothing syrups and cough and consumption remedies, most of which contain some form of morphine or opium. Of these the best known are Mrs. Winslow's Soothing Syrup and Kopp's Baby Friend, Dr. King's New Discovery for Consumption, and Dr. Bull's Cough Syrup, all of which contain opiates.

In this connection emphasize the fact that if preparations containing any form of opium are given many times in infancy or early childhood there is the gravest danger that when these children become young men and women they will be strongly predisposed to the use of narcotics, as well as very likely to suffer from neurasthenia and diseases of the digestive organs.

"When she puts her arms around my neck and coos in glee,
She's worth uncounted millions to her mother and to me."

The catarrh cures (?), nearly all of which depend upon cocaine for their main ingredient and selling quality, may be considered in the second class. Birney's Catarrh Powder, Dr. Cole's Catarrh Cure, Dr. Gray's Catarrh Powder, and Crown Catarrh Powder are most in demand, and some of these are said to contain as high as 4 per cent of cocaine. So many cocaine fiends were made in Chicago that the city passed an ordinance forbidding the sale of cocaine catarrh powders, and Illinois has a similar law.

The third class, and in some respects the most dangerous, especially to students, is the increasingly large family of headache tablets and powders. These nearly all depend upon their large content of acetanilid, a powerful heart depressant which, as Samuel Hopkins Adams says, is prone to remove the cause of the symptoms by putting a complete stop to the heart.

The United States Pharmacopoeia dose of acetanilid is 4 grains; 5 grains have been known to produce fatal results. Bromo-Seltzer, often used as a bracer by fatigued brain workers, if taken in the prescribed dose of a heaping teaspoonful contains 10 grains of acetanilid.

A leading periodical prints the names and addresses of 22 persons, men and women, who died from the effects of bracers or headache medicines containing this drug.

Orangnine, Bromo-Seltzer, Megrimine, Anti-Kamnia, Phenalgin, Cephalgin, and several others, as well as most of the drug-store headache cures, are composed largely of acetanilid. These nostrums thin the blood, depress the heart, and in many cases form drug habits.

AUTHORITATIVE QUOTATIONS

DANGER OF USING NOSTRUMS

In my experience I have known of men filling drunkards' graves who learned to drink taking some advertised bitters as legitimate medicine. It would be hard to estimate the number of young brains ruined, and the maturer opium wrecks from nostrums of this nature. I could write a volume on the mischief that is being done every day all over the land, by the thousands of miserable frauds that are being poured down the throats of not only ignorant people, but, alas, intelligent ones, too.—E. A. CRAIGHILL, M. D., President of Virginia State Pharmaceutical Association.

The unnatural craving felt by the drinker is shared by all who become slaves to a narcotic. It is probably due to the fact that these poisons enter into actual contact with the nerve substance. This has been shown to be true of alcohol, and although the changes produced by the other narcotics are not known, the similarity of their effect upon the nervous system suggests that they may act in the same way. A combination between the alcohol and the nerve-

matter of cells and fibers renders the composition of the nervous substance different from normal, but the body accustoms itself, after awhile, to the new order of things.

When the alcohol has disappeared from the tissues of the body, the nerve-cells are left in a state of disorganization. Disorganization of cell structure means the beginning of death, and the whole body sends up a cry for relief. And the relief must be immediate and easily attained in order to abate suffering. This craving for narcotics is the most terrible fact connected with their use.—ROGER S. TRACY, M. D., Registrar of Records of the New York City Health Department, in *Outlines of Anatomy, Physiology, and Hygiene.*

COMPARATIVE EFFECTS OF MORPHINE AND ALCOHOL

The morphine taker becomes practically an incurable in five years. The alcoholic user of spirits may continue eight or ten years, before he reaches incurable stages. This will depend on the free intervals between the time of using spirits. When he becomes incurable he may abstain, but the injured brain and nervous system never recover.—*Journal of Inebriety.*

DANGERS OF OPIUM POISONING

Among infants and in the early years of life, soothing syrups are the cause of untold misery, for seeds are doubtless sown in infancy only to bear the most pernicious fruit in adult life. I believe that stringent legal measures should be immediately taken to stop the sale of so-called soothing syrups containing opium, morphia or codeine.—*Report of Massachusetts State Board of Health, 1888.*

In my studies of the heredity of all alcoholic and opium inebriety, about 10 per cent give some history of drugging in infancy. Paregoric and laudanum are the most common. No form of opium should be given to infants or children. While the effects of continuous sedation may be overcome by correct living, the cell injury and perversion of function are never repaired. Where soothing syrups and prescriptions for seductive effects have been used for a long time, the suspicion is strong that the opium diathesis [predisposition] has been created. I wish to emphasize that the use of opium and its alkaloids in infancy will, in a large proportion of cases, create a diathesis or predisposition to its use in later life. This predisposition is manifest in irritation and exhaustion, with intense, uncontrollable impulses for relief.—T. D. CROTHERS, M. D., in *Journal of Amer. Med. Ass'n.*

COCAINE DRUGGING

Cocaine is given for some of the distressing catarrhs and nasal troubles which are so painful. Its narcotic action on an inflamed mucous membrane is very marked, and is quickly followed by a certain fascination to continue the drug which is difficult to control. The possibility of not being able to give up the drug never occurs until symptoms of obvious poisoning appear, and then, in many cases, the mind has lost all power of appreciating its real condition. —Editorial in *Journal of Inebriety,* April, 1897.

While opium is injurious and in all ways a curse to the patient, it is not so rapidly deleterious as chloral and cocaine. Their course is steadily downward until the nervous system is a complete wreck.—L. D. WHITE, M. D.

Among the symptoms due to cocaine poisoning are extreme pallor, profuse perspiration, unconsciousness, frequent, feeble, irregular pulse; dizziness, nausea: more rarely, blindness, deafness, muscular rigidity, paralysis, and convulsive or suspended respiration.—W. SCHEPPEGRELI., M. D.

ACETANILID POISONING

Obscurity as to the real nature of the drug, fostered by careful deception, is the safeguard of the acetanilid vender. Were its perilous quality known, the headache powder would hardly be so widely used. And were the even more important fact that the use of these powders becomes a habit, akin to the opium or cocaine, habits, understood by the public, the repeated sales which are the basis of Orangeine's [and others] prosperity would undoubtedly be greatly cut down. Did it [and others] not foster its own demand it would hardly be profitable.—*Collier's Weekly,* Dec. 2, 1905.

Last July an 18 year old Philadelphia girl got a box of Orangeine powders at a drug store, having been told they would cure headache. Following the printed advice she took two powders. In three hours she was ded.— *Collier's Weekly,* Dec. 2, 1905.

PHYSIOLOGY TOPICS FOR MAY

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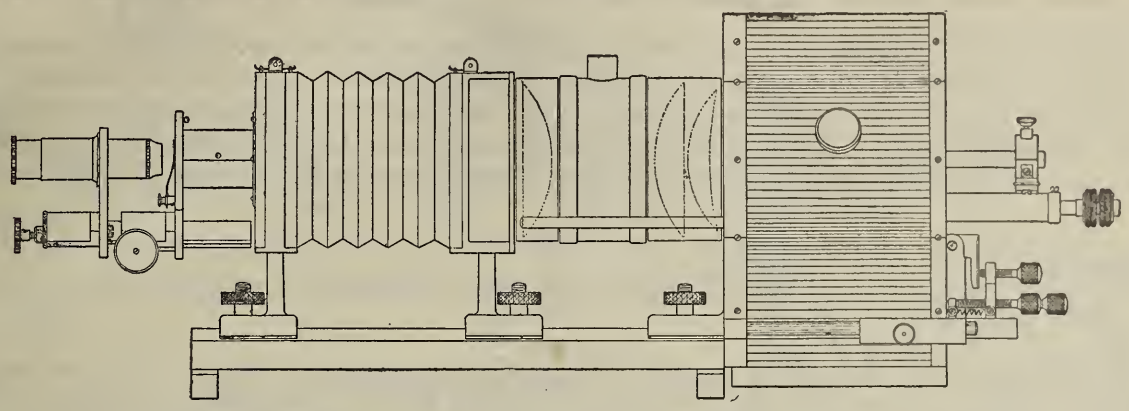

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SALUTE THE SOUL THAT DARES

BY ELIZABETH STUART PHELPS-WARD

Salute the soul that dares, though royal born,
Become knight errant of the hope forlorn;

Disdain the sneer that curls the curving lip,
Arrest a world's doubt by the scepter tip.

As surely as the skies the caverns crown,
The noble deed shall live the base thought down.

As certain as the dawn to stir the dark,
The arrow of the age flies to the mark.

Dividing years, and years to be shall know
Whose was the hand that held and bent the bow.

Now, then, and ever well the great Law rears:
All souls high-born salute the Soul that dares.

AN IMPERISHABLE RECORD

BY MARY F. LOVELL

(Acting Superintendent Scientific Temperance Instruction)

WHAT is here presented is largely the result of personal knowledge, as the writer had the honor to be Mrs. Mary H. Hunt's friend for a period of twenty-one years. As the record of her remarkable work becomes more widely known (what it cost her can never be known), it will be recognized as unique in the history of nations.

In the years 1872-76, while assisting the studies of her son, then a student in the Massachusetts Institute of Technology, Mrs. Hunt's attention was drawn to the subject of the origin and nature of alcohol and the effects on the human system of beverages containing it, as shown by scientific research. She found herself very deeply interested in the subject—her own previous studies in chemistry being a contributing cause—and the idea that the true nature of alcoholic drinks, stimulants and narcotics and their effects on the human system should, in connection with physiology and the general laws of health, be taught as a preventive measure in the common schools, came to her.

She communicated her thought on the subject to a friend engaged in school work, but at that time he gave her little encouragement, saying that such a study could not be added to the general public school curriculum except under law for each state, and that such laws would be most difficult to obtain. Nevertheless, her soul haunted "by that invisible power that can shape destiny for one obedient to the vision," she continued her study of the nature and effects of alcohol as shown in the work of European investigators, and bided her time.

At last, in 1879, after having given some public addresses on the subject, Mrs. Hunt laid her burden of conviction before Miss Willard who was at that time her guest, and she suggested that Mrs. Hunt attend the next convention of the Woman's Christian Temperance Union to be held at Indianapolis, and thought that a standing committee would be appointed through which Mrs. Hunt could work out her ideas. This was done, but the following year the committee was, at Mrs. Hunt's request, merged into a department, that of Scientific Temperance Instruction. She was appointed superintendent.

Then began a unique and most magnificently conducted educational campaign, the like of which the world had not before seen. A letter written last February from Germany, by a Boston gentleman, expressed the opinion that "future generations of Americans will believe what many foreigners seem to think now, that Mrs. Hunt's success in the matter of scientific temperance instruction embodies the most important piece of constructive statesmanship which our day has brought forth."

Mrs. Hunt could not have succeeded in her aims alone any more than a general could conduct a battle without an army, but the general must know how to use his army. The Woman's Christian Temperance Union, and to some extent other bodies, worked under Mrs. Hunt's guidance and suggestion, and she was the wise general who never faltered nor hesitated.

In 1882, the first law prescribing compulsory instruction in the scientific reasons for total abstinence was passed in the state of Vermont. In 1901, the last law of the same kind was passed in the state of Georgia. Thus within twenty years, under the guidance of the extraordinary woman whose mighty mind shaped the course of things, the whole immense area of the United States was covered by laws providing that the pupils in all public schools shall receive warning teaching as to the true nature of alcohol and other narcotics.

But the half is not told. When the law of Vermont was enacted there was not a text-book in existence with which to carry out its provisions. The truths required to be taught were contained in advanced scientific works unsuited

to school use. Publishers to whom Mrs. Hunt had appealed to issue books adapted to child understanding told her there would be no market for them, as legislatures would not continue to pass laws requiring the teaching. With unwavering faith she persevered, as it was her intention that legislatures should pass such laws, and by the time (1885) that the great state of Pennsylvania had enacted its temperance education law, she had induced one school book firm to publish a series of three books on physiology and hygiene which contained in each division of the subject, and in properly graded form, the scientific facts she desired taught. The preparation of these books cost Mrs. Hunt personally six thousand dollars, money which she provided at great personal sacrifice.

And now began a time of very serious trouble. Securing the laws in those states which had enacted them had been a herculean task which was accomplished only through constant public speaking, newspaper articles, letters, and petitions to legislatures in immense numbers, addresses before legislative committees, appeals to clergymen and educators. The stir thus made, and the actual passing of the laws convinced school book publishers that they were mistaken, that there was a rapidly opening market for books on physiology and hygiene.

Without consulting Mrs. Hunt, though she was the cause of their opportunity, they issued hastily prepared books which were faulty in the extreme, and worse than valueless as a means of teaching the truths of science concerning alcohol and other narcotics. Mrs. Hunt—the Woman's Christian Temperance Union co-operating with her—opposed the introduction of these defective books into schools as an injustice to the children and a means of defeating the end for which they had so earnestly labored.

The disappointed publishers retaliated. The Woman's Christian Temperance Union had formally indorsed, through Mrs. Hunt, the one well prepared series, and they recommended the same to school boards. The "book job" slander was started by the angry publishers and industriously circulated by their agents and those of the liquor power, which by this time understood the serious menace of Mrs. Hunt's work. The malignity of the attack was so great and far reaching that only one with the pure motives and utter devotion of this great woman would have stood firm under the shock. She not only stood firm but said that a standard of scientific accuracy for text-books on the subject must be established, and that publishers must be asked to revise their defective books to this standard. She prepared the form and matter of the standard, and the Woman's Christian Temperance Union formally adopted it.

The publishers now found strong opposition to the sale of their books. School boards and educators learned through the untiring energy, prompted by Mrs. Hunt, of the women of the Woman's Christian Temperance Union, why they were objectionable, and in many instances refused them. Some of the publishers opened communication with Mrs. Hunt, and submitted their books for revision under her direction.

About this time the present writer paid a visit to one of the leading publishing houses which had signified a wish to come to terms, and held a conference with the senior member of the firm, a man who held the position of elder in his church, and who was of supposedly decent social position. His interviewer referred to the shameful book job slander, and remarked upon the fact that his firm knew very well that it contained no grain of truth. His reply, given with a bland smile, was, "Oh, yes, *but we worked it for all it was worth!*"

This person (since dead and gone to his place), had a rather singular name, but even this could not save him from oblivion, but the woman whom he dared to slander has received and will receive honor and respectful admiration from the greatest and best in all lands where her name and work shall become known.

In the years that have passed many publishers have submitted their books to Mrs. Hunt for revision, and owing to her constant research (aided by a corps of assistants) the books indorsed by her committee are scientifically up-to-date and in other respects the best of their kind. Ingenious attacks upon their accuracy, sometimes plainly prompted by the liquor traffic, and sometimes by motives not so apparent to the general observer, as in the case of the Atwater findings and the Reports of the Committee of Fifty—have been repeatedly refuted.

These books, as well as others more lately written, have been translated into Spanish, Icelandic, Chinese, Finnish, Swedish, Hawaiian, and Japanese, also into three Indian dialects; and a German edition of one of the later series is being prepared which, when ready, will, by imperial decree, be studied by children in the elementary schools of Germany. One of the smaller indorsed physiologies has been published serially in the Portuguese language in Brazil.

As a result of our country's example, scientific temperance instruction is now given to some extent in the schools of Australia, New Zealand, Japan, China, British India, South Africa, Egypt, and most European countries, including Norway, Sweden, Great Britain and Ireland, Germany, France, Austro-Hungary, Switzerland, Denmark and Holland. On this continent it is given in some schools of Canada, and to some extent in Mexico, Chili, the Baha-

mas, besides Cuba, Porto Rico and Jamaica. Chili has a temperance education law modeled in some respects on our national law.

In February 1904, after Mrs. Hunt's last visit to Europe, upwards of 15,000 physicians in Great Britain and Ireland, practically the entire medical profession of the United Kingdom, petitioned for compulsory education in hygiene and temperance like that required in the United States, for their public elementary schools, and a committee representing these petitioners recommended and sent out for the schools of the United Kingdom a Syllabus of topics based on the Course of Study prepared by Mrs. Hunt.

Reference has been made to the admiration excited abroad by her wonderful achievements. This was very marked at the Anti-Alcohol Congress held in Bremen, Germany, in 1903. A request had been sent by the officers of the Congress to President Roosevelt that the United States be represented in the Congress, and that, if possible, Mrs. Hunt be the representative. The President referred this to Secretary Hay who sent Mrs. Hunt a letter of introduction addressed to the diplomatic and consular officers of the United States, bespeaking their good offices in connection with her mission. After the close of the Congress, in which Mrs. Hunt made a profound impression, Hon. Charlemagne Tower, our Ambassador to Germany, arranged an interview for her with the Prussian Minister of Education. An important result of that interview has already been mentioned.

The star of hope for the temperance reform stands over the schoolhouse

MARY HANCHETT HUNT

If we save the children today, we shall have saved the nation tomorrow

Mrs. Hunt next received a telegram summoning her and a lady who was with her to the Royal Palace at Potsdam, where the German Empress wished to receive them. Her Majesty greeted them with extended hand and a charming smile, and assigned Mrs. Hunt a seat on the sofa at the right of her own chair. In answer to her questions Mrs. Hunt told the story of the origin and progress of the movement which had put temperance education laws upon the statute books of the American nation, requiring that the 22,000,000 future men and women of the country should study with other laws of health, those that teach the physiological reasons for total abstinence.

She explained the work of the Woman's Christian Temperance Union, and showed that it watches continually to see that the children get this particular education. She spoke of Germany, its past and possible future; of the good Queen Louise and the picture of her in the Hohenzollern Museum representing her visit to Pestalozzi's school, and saying, "We must teach the people." Then she showed how to another woman now on the throne of Germany had come the opportunity to extend a fostering hand to a system of education that would free the Germany of the future from the tyranny of alcohol. The Empress responded with quick and intelligent sympathy.

In conclusion it may be said that not only was Mrs. Hunt's inestimable work purely gratuitous, but she bore the main burden of securing its support. Its cost has been over eight thousand dollars annually, of which the Woman's Christian Temperance Union could give only a few hundreds. The rest Mrs. Hunt was herself obliged to raise.

She freely sacrificed her time, her convenience, her freedom; even a brief retirement when death came to those she loved. On the morning of the day of the death (in the afternoon) of her only and most beloved son, with a heart torn with grief, she yet fulfilled an engagement to make an address, and made it well. Truly of her it may be said that she loved the Lord her God with all her heart, and with all her soul, and with all her mind; and her neighbor as herself. Much more than herself did she love the children of this land. Happy are they who have understood and appreciated her. Thrice happy are they whom she honored with the title of friend.

"Servant of God, well done!
Rest from thy loved employ:
The battle fought, the victory won,
Enter thy Master's joy!"

HE GIVETH HIS BELOVED SLEEP

BY REV. W. H. ALLBRIGHT, D. D.

"So He giveth his beloved sleep."

THE word "so" sometimes expresses intensity of purpose and of devotion, as when it is written, "God so loved the world." At other times it expresses manner, as here, where a thoughtful tenderness and affection are suggested as to the way He deals with those whom He cherishes and loves. God not only gives his beloved sleep, but He gives it to them in a gracious manner.

It has been so in this instance. Sleep has come not after violence and distress, not after tumult and pain, but gently and mercifully, as the toilworn servant comes to repose after the work of the day is done; as the sun sinks to its setting after the brilliance and benignity of the day's service is accomplished.

Up to the last two or three days of her remarkable career, our friend, Mrs. Hunt, had preserved to her all her faculties of mind and sense. The flowers that were sent to her by loving friends charmed her eyes with their beauty, and revived her with their fragrance. Her sight was retained in its wonderful clearness until the very last days of her exacting service. She needed no artificial aids such as some of us find to be indispensable. Her hearing was as acute as in the days of her girlhood. Her discernment and judgment held their regal sway until the end. She came to the close of this earthly life with the composure befitting a great soul. In the consciousness of all that was transpiring around her, transacting affairs, doing up to the last bit of strength, and almost the last moment of life, Mrs. Hunt at length fell asleep, assured that God in Christ was ordering all things well for her, and the things in which she was so deeply concerned.

To her pastor, called to her bedside, to others, members of her Advisory Board, and lifelong friends, she said, "Talk to me about heaven." This is the language of those who are letting go of earth. Mrs. Hunt was consciously on the border land. She expected soon to cross the hidden line which separates earth from heaven. So it is that God prepares his loved ones for the beatific vision. "So He giveth his beloved sleep."

About twelve years ago, in the prime of her splendid womanhood, in the midst of her brilliant services for the cause of scientific temperance education, Mrs. Hunt came to Dorchester, came to be a member of Pilgrim Church. Her presence among us could not be obscured. Her personality was powerful and commanding. Her nature was full of resources and accomplishment. Big things were in her brain. She was built on lines of might. Her character was as strong as her service was eminent.

Until the last year, Mrs. Hunt, when present in Dorchester, was an attendant and participant at the midweek prayer and conference meeting. When she spoke, we gave attention. When she prayed, we drew near the throne of grace. Speaking, she spoke as a seer, with penetration and elevation. Her mind took in great horizons. Questions of national import were familiar to her. She anticipated and grasped them with statesmanlike acumen. Education, temperance, morals, these things she had mastered.

She was intensely patriotic. It was in her blood. She was a daughter of the Mayflower and the Revolution. The nation was on her heart. The children of today not only, but of generations to come, lived in her ideals and sympathies.

To the country she loved so well Mrs. Hunt gave a soldier son, a captain of artillery with his mother's courage and consecration. That son became a sacrifice for his country in the Spanish-American war. The event was a mother's joy and a mother's pain. From that day forward life for her was lived under another hue. The burden became heavier because, in some sense, borne alone.

Nature overtaxed began to yield. A splendid physique, that erstwhile knew no tire or wear, gave signs of overdraft and limitation. Little by little, step by step, the commander began to come under command.

The end is all glorious. Serene, strong, triumphant, she has written her record into the history and life of the nation and the world, and her memory and fame are secure as they will be imperishable.

"Servant of God, well done."
"So He giveth his beloved sleep."

"The loss to your own organization and to the cause of temperance everywhere cannot be measured. No woman in the history of our country has done more for this and coming generations. Her name should be sacred in every home and in the heart of every child. She was great in the highest qualities of both mind and heart. By her amazing ability and unselfish and indefatigable exertions she accomplished a work in every state in the union that will redound to her honor for untold generations. Happily she was spared to see something of the inestimable blessing of her labor both in this and other lands.—D. STUART DODGE, D. D., President National Temperance Society.

The Presbyterian Church mourns the loss of one of the greatest women of the age, Read Luke VIII : 52, X : 42, Revelation XIV : 13.—JOHN F. HILL, D. D., Secretary.

MRS. HUNT'S CALL TO THE WORK

BY REV. PERLEY B. DAVIS

Formerly Pastor First Congregational Church,
Hyde Park, Massachusetts.

MY acquaintance with Mrs. Mary H. Hunt began in the spring of 1867, when I became pastor of the First Congregational Church of Hyde Park, Massachusetts. She was one of a band of noble, praying women whose influence in the church was conspicuous.

Mrs. Hunt's fine education, her rare qualifications, both natural and acquired, her remarkable skill as an organizer, her keenness of perception, her forcible utterance, and her preeminent ability to impress other minds, gave her the place of a recognized leader. Severe disappointments in her family, along financial lines, deepened greatly her religious character.

Standing, as it seemed to her, very near the Celestial City, its doors were not ready to be opened to her until she could enter with the record of a more consecrated life and self-sacrificing service. She turned her face back to earth with the promise that, if spared, she would be faithful to whatever trust should be committed to her.

Gradually health and strength were restored. Her absorbing inquiry now was, "Lord, what wilt Thou have me to do?" By unmistakable providences the path opened. She recognized a Divine leader. God had been preparing the metal in the crucible. Her talents and acquirements were to find ample scope for exercise, her lessons in the school of discipline wide field for expression. She clearly foresaw struggle, sacrifice, opposition; but she willingly followed the pillar of cloud and fire.

As the river needs no guide to the sea, Mrs. Hunt needed none but the Infinite to direct her path. Her reliance was upon God. This made her confident in judgment, pronounced in opinion, unswerving in method. She was building according to the pattern shown in the mount.

Hope Cottage, Hyde Park, Mass.
The birthplace of the temperance education movement

She was shut up to God. Prayer and the study of the Bible became to her vital elements, the atmosphere of her life.

Her pastor, on one occasion, inquired of her if the thought had ever entered her mind that a wider range of influence might be opened to her than could be afforded within the sphere of a local church. This, as she afterwards said, was the first time such an idea had come to her.

Soon she was taken seriously ill. Her life seemed ebbing away. While lying in an apparently unconscious state there came to her, as she later stated, a vivid, and to some extent, upbraiding, retrospect of her past life; remembrances, not of positive wrong committed, but of opportunities of serving God and humanity she had only partially embraced, of talents she had not fully employed, and of sacrifices she had not been wholly willing to make.

Such answers to prayer as have been witnessed in her experience have been seldom realized. The evidences that a Divine Force was with her, and giving success to her work, were unmistakable. Those who opposed her cause found themselves fighting against God. Her efforts mark the greatest movement along the lines of temperance the world has ever seen.

In this, however, Mrs. Hunt was but an *instrument*. The *Agent* was Divine.

The instrument has now fallen. The Agent remains. "God buries his workmen but carries forward his work."

MRS. MARY H. HUNT

BY REV. ALBERT H. PLUMB, D. D.

Chairman Advisory Board of the Department of Scientific Temperance Instruction of the Woman's Christian Temperance Union

WHEN we look at Mrs. Hunt as rendering effective service for the kingdom of God—and that is the highest kind of distinction—we see certain characteristics existing in rare perfection. For instance, mark her strong faith in the wisdom and safety of following the providential guidance given to a prayerful consecrated soul, working along the lines of scientific truth. Success ultimately comes to those whose efforts are in harmony with the facts of the universe.

Some seem to act as if this were Satan's world, and, as if, in order to get on in any project, we must invoke his aid and adopt the principles by which he rules. He told our Lord of a short and easy way to secure success. "There is no need of a bitter and painful struggle through the ages to establish thy reign. I will give thee all the kingdoms of the world at once, if thou wilt only for one moment acknowledge my authority. I will call off my hosts and give thee the whole thing now, as I know I must in the end, if thou wilt simply recognize my right for a single instant. All these things will I give thee if thou wilt fall down and worship me."

Not only did the devil thus ask an impossible thing for a holy being to grant—for "it is written, thou shalt worship the Lord thy God, and him only shalt thou serve,"—but he promised an impossible thing for an unholy being to give. The world with all its glory was not Satan's to deliver to any one, and never will be.

Yet every day people are led by the arch-deceiver to believe this lie, and to compromise with wrong,—to accept positions which they know are inconsistent with the facts in the case.

Mrs. Hunt never did this. She believed that moral law in the spiritual world, and economic law in the physical world, are from the same hand. The entire universe is under the sovereignty of a holy God. As her friend, the late Dr. Joseph Cook, used to say: "There must be a best way to live, and it must be best to live the best way, and the best way necessitates instant, total, irreversible surrender to the imperial demand of the best we know, the truth, the great realities of our nature and environment."

This was why she was always serene in the midst of storms of opposition, misrepresentation and personal abuse, tranquil always, though the vigilant and virulent liquor power dogged her footsteps into every legislative hall in our land; though many respectable people, timid and fearful of innovation, strove to throw contempt on her mission, and on her motives as well.

One of her earliest public addresses on this great interest was made in the Walnut Avenue Church, Boston. As I heard her then, and as I have heard her since, on many a memorable occasion, in great popular assemblies or before legislative committees, I have never failed to mark this supreme confidence in the impregnability of her position: teach the truth, let the truth be known, that it may have free course, and be glorified, as ultimately it assuredly will.

In the Onyx Chamber of the Albany Capitol, in 1895, when confronted with a large number of school officials, the state superintendent at their head, and with many doubting philanthropists, in strange alliance with the destructive advocates of drink, declaring that it would be impossible to run the schools on her plan, she calmly pointed to precisely the same objections urged in Pennsylvania five years before, and then she produced multitudinous testimonies from the school authorities of that state, showing that the law enacted there then, had for years been working well.

The eight hundred thousand petitioners, who had called her to their aid, gained all they asked. The Ainsworth law was overwhelmingly carried, and after it had been several years in operation, the large and reliable New York State Committee for Scientific Temperance Instruction, which had led in securing the law, reported from extensive inquiries that it was widely approved by the people because of its manifest excellent results.

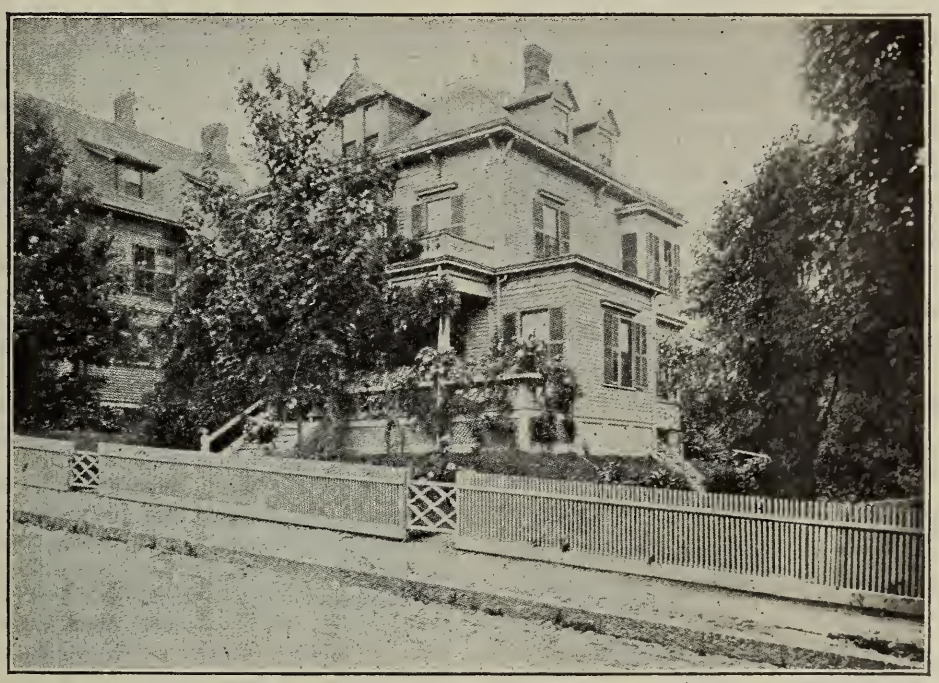
It was the invincible power of God's truth in natural law, the force of the better reason on which she always relied, and not in vain. She saw state after state wheel into line, till the entire nation of eighty millions stood before the world, in vast and solemn array, commanding that their school children shall be taught how science warns them against intoxicating drinks. It was what she had expected. Nor was she surprised in her last hours, though the news greatly cheered her soul, to learn that precisely the measures she had carried in America, were being adopted in England and Germany, because their most learned authorities recognized that they were in harmony with the handwriting of God in the constitution of man.

Another prominent feature of Mrs. Hunt's character was her generous recognition and warm Christian appreciation of the great host of praying women associated with her, without whose effective co-operation all her efforts had been in vain, and also of the great numbers of eminent men, scientists, physicians, teachers, reformers, and statesmen, who responded to the claims of the cause she represented, and became its advocates and friends.

As the battle raged from state to state, she

never tired of sounding the praises of the noble men and women who rallied around her everywhere, and who threw their vast influence in favor of this great reform. It was not personal fame but the advancement of this humane and philanthropic undertaking which was her heart's desire, and the more potent and conspicuous any of her allies became, the greater her joy.

In the late war with Spain, how derogatory to our patriotism, how humiliating to human nature, were the petty jealousies of certain officers in our army and navy, and the partisan intrigues of their friends. General Grant, in the greater events of his time, proved himself too great a soul to stoop to such meannesses, and nothing delighted him more than to make hearty acknowledgment of the services of Sheridan and Sherman and Thomas and other worthies who aided our country's cause.



Home of Mrs. Mary H. Hunt, 23 Trull St., Boston, Mass.
Present Headquarters of the Department of Scientific Temperance Instruction

Sympathy for suffering humanity is a worthy motive in all philanthropic endeavors. Mrs. Hunt's kind heart throbbed with love for the wayward and unfortunate. The pitying compassion of a noble soul flames out hotly in indignation at the spectacle of injustice and wrong. But by the necessary limitations of our emotional nature, such feelings fluctuate with our varying moods, with the more or less vivid picture of human misery before our eyes.

There is, however, a more exalted motive, more constraining, more steady and enduring. It is sympathy with Christ in his self-sacrificing endeavor to break the power of Satan, and recover the race from his ruinous grasp. "For this purpose was the Son of God manifested that he might destroy the works of the devil." To share in that purpose with a passionate, personal affection for the Redeemer, and a self-denying devotion to his work, gives one his utmost efficiency, his highest nobility.

It was precisely in this that Mrs. Hunt's character reached its chief glory. Christian womanhood is humanity's best expression.

A learned student of history, the late Rev. Dr. Richard S. Storrs, points to this fact in the following eloquent words:

"It is a fact, significant for the past, prophetic for the future, that even as Dante measured his successive ascents in Paradise, not by immediate consciousness of movement, but by seeing an ever lovelier beauty in the face of Beatrice, so the race now counts the gradual steps of its spiritual progress, out of the ancient heavy glooms toward the glory of the Christian millenium, not by mechanisms, not by cities, but by the ever new grace and force exhibited by the Woman who was for ages either the decorated toy of man or his despised and abject drudge."

Mrs. Hunt's resolute subordination of personal considerations, in her supreme devotion to the public interests she had espoused in the name of Christ, shone brightly in her meek resignation to the Father's hand, when her able colaborer and beloved son, Captain Alfred E. Hunt, died as a result of his service for his country, as a volunteer in our Spanish War. She would not permit her sorrow to stay her hand, or abate her energy in her chosen work.

In the same spirit she met the growing infirmities which have removed her from us. She endeavored to ignore the verdict of her physicians that she had but a few weeks to live. She strove by shear force of will to extend the period of service as long as possible and kept steadily on with her work, managing her Department with her usual skill, until the power of speech had well nigh failed.

In my last interview with her, she said to me, with scarcely audible utterance, "Speak to me of heaven, I am almost there."

Quoting to her the promises that believers shall be with Christ, and like Christ, and as his servants shall serve Him, and remarking that this covers all we need to know, she responded with emphatic assent.

She was serving Him to the very last.

MRS. HUNT'S ADVISORY BOARD

EDITORIAL NOTE

IT is well known that Mrs. Hunt enjoyed the personal acquaintance of large numbers of eminent ladies and gentlemen in this and other lands who are interested in the philanthropic ends she sought to promote; medical men, university professors, experts in scientific research, statesmen, clergymen, reformers, officials in various denominational and educational associations, and that she was continually conducting an extensive correspondence with such distinguished persons, recognized authorities in their several spheres. Moreover, she had organized, with the aid of the Woman's Christian Temperance Union, an Advisory Board, with its various sub-committees, with whom she found it convenient from time to time to consult on the problems often arising in the prosecution of her work as National Director of the Bureau of Scientific Temperance Investigation, and World and National Superintendent of the Department of Scientific Temperance Instruction in Schools and Colleges of the Woman's Christian Temperance Union, and as Life Director of the National Educational Association. The names of the gentlemen thus associated are as follows:

Clergymen and Reformers

REV. A. H. PLUMB, D. D.,
Pastor of Walnut Ave. Congregational Church, Boston, Mass.
DANIEL DORCHESTER, D. D.,
Ex-National Superintendent of Indian Schools, West Roxbury, Mass.

Educators

HON. W. T. HARRIS, LL. D.,
United States Commissioner of Education, Washington, D. C.
WILLIAM A. MOWRY, Ph. D.,
Ex-President of Martha's Vineyard Summer Institute, Hyde Park, Mass.
REV. JAMES R. DAY, LL. D.,
Chancellor of Syracuse University, Syracuse, N. Y.

Physicians

T. D. CROTHERS, M. D.,
Professor of Diseases of the Brain and Nervous System, New York School of Clinical Medicine, Hartford, Conn.
L. D. MASON, M. D.,
Brooklyn, N. Y.
CHAS. H. SHEPARD, M. D.,
Brooklyn, N. Y.
DANIEL R. BROWER, M. D., LL. D.,
Professor of Mental Diseases, Materia Medica and Therapeutics, Rush Medical College, Chicago, Ill.
GEORGE W. WEBSTER, M. D.,
President of Illinois State Board of Health, Chicago, Ill.
JOHN MADDEN, M. D.,
Portland, Ore.
T. ALEX. MACNICHOLL, M. D.,
222 W. 136th St., New York, N. Y.

ESTIMATE OF MRS. HUNT BY HER ADVISORY BOARD

In view of the recent death of Mrs. Mary H. Hunt, the Advisory Board connected with her work for Scientific Temperance Investigation and Instruction in the Public Schools, approves and presents to the public the judgments concerning her character and work which are embodied in the following letter from one of its members, the Honorable W. T. Harris, LL. D., United States Commissioner of Education.

In behalf of the Advisory Board,
ALBERT H. PLUMB, Chairman.

Department of the Interior
BUREAU OF EDUCATION
Washington, D. C.

May 11, 1906

Rev. Albert H. Plumb, D. D.,
Boston, Massachusetts.

My dear Sir:—I am in receipt of your letter of the 8th instant relative to suitable action on the part of the Bureau of Scientific Temperance Investigation and other associations engaged in promoting the cause of temperance, in recognition of the life-work of Mrs. Mary H. Hunt.

I am in full sympathy with this purpose and also agree with you that the Association should give formal expression to its appreciation of the service which Mrs. Hunt performed in the interest of humanity.

Her work was original in its aim and methods and she brought to its accomplishment a rare combination of moral courage, high enthusiasm and intellectual endowments. It is a satisfaction to recall that she herself lived to see her idea respecting scientific temperance instruction adopted by every state in the Union, beginning with Vermont and ending with Georgia in 1902, and by acts of Congress introduced into all schools aided by Federal funds including West Point and the Naval Academy at Annapolis. The idea has been approved also by the German government and by many local authorities and organizations in England, whose influence in time determines public action. Her work was indeed international in scope and broadly human in its purpose, being without limit of place or time. It is certainly most fitting that the Association which was created by her efforts should suitably commemorate its founder and life-long Director, who is worthy to be classed among the great philanthropists of the world.

Very respectfully yours,
W. T. HARRIS, Commissioner.

THE SCHOOL PHYSIOLOGY JOURNAL

Although plans for the editorial management of the JOURNAL during the coming year are not yet fully matured, we are able to announce that it will be continued and that, as heretofore, it will contain each month model lessons in physiology, hygiene, and temperance for primary, intermediate and advanced grades, with suggestions for their classroom use and authoritative quotations from the leading scientists of the world. As usual, the next issue will be that for September. Renewals and subscriptions beginning with that number should reach us not later than August 15. Make all checks and money orders payable to the SCHOOL PHYSIOLOGY JOURNAL.

School Physiology Journal

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MARY H. HUNT, EDITOR

HENRIETTA AMELIA MIRICK, Assistant Editor

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"Thou must climb faster for the aspiration
To walk henceforth where her swift feet have trod;
Thou art but fuller for the desolation
That shuts thee in with God."

SHE YET SPEAKETH

A CHILD'S hand is on the door latch of the millennium.

God has taught us to lay our hand upon the child before Satan gets his grip upon him.

The only remedy for vice is to remove the ignorance from which the vice originates.

The children are the hope of the temperance reform, and the public school practically reaches them all.

Seek ye first the temperance education of the children, and all other temperance blessings shall be added unto you.

A majority of the voters of tomorrow are in the first five years of the public schools of today.

Thorough scientific temperance instruction in the first five school years means future no-saloon majorities.

The American people want no temporizing in the instruction which is given their children on this vital subject. It must be as radical as the truth itself.

If the people of the next generation are not total abstainers, it will be the fault of the temperance men and women of today who fail to inforce their temperance education laws.

Across the morning of the twentieth century we raise the signal: For the temperance education of the children the world expects every man and woman to do their duty.

Vain are the efforts of man to make the clock of the world move backward. Its great pendulum swings to the rhythm of truth. In the fullness of time it strikes the death knell of error, and when that time comes no man can turn the hand back on the dial.

The children are the legal heirs to every truth of science that warns against the use of alcohol and other narcotic poisons. To deprive them of these truths is an unspeakable sin, not only against the children, but also against the nation soon to be governed by them.

The vital step is to educate public opinion as to the dangerous character and harmful effects of alcohol. This education must be as universal as the people, and it must be imparted before appetite is formed.

We should be as unyielding and persistent as gravitation concerning the pursuit of this study in the most effective way, in all lower grades as well as in the more advanced classes, until the subject is covered.

The International Course of Study is the result of twenty years' experimental study of what must be taught, how it should be taught, when, and to whom, in order to secure a nation of strong, achieving people, and to insure for them a future of intelligent sobriety.

Nothing can induce me to indorse a book that minimizes in the least the full warning that the truth warrants and that our times demand for the children and youth of our land against alcohol. If we would save the land from the evils of narcotics we must watch to see that the books put into the hands of the children in the schools teach no emasculated gospel of temperance.

Truth can be trusted to assert itself and to overcome and win. It has in the past, and it will do so more and more if we do our part, which is to publish it and to work without ceasing that it may reach the minds and souls of our fellow beings.

The twentieth century heroines who work for the overthrow of the tyranny of alcohol, through the spread of the truth as to its real nature and effects will, in the grand assize, rank with those who have labored to make our country great; and with a greatness—that of character—that brightens with the lapse of time.

For myself I claim no credit. As a leader of the mighty hosts of godly Christian Temperance Union women in this work, I have tried only to follow the great Leader without whose guidance and help all our efforts would have been in vain.

The God of Nations does not estimate values as we do. That the strong in attainment, in nobility of character, and in possessions should rescue the weak is the loftiest virtue, and a reflection of his spirit whose supreme sacrifice is the glory of history.

WEEP NOT FOR HER

BY LILLIAN M. N. STEVENS

President National Woman's Christian Temperance Union

IT will be hard for the members of our organization to realize that Mrs. Mary H. Hunt is no more to mingle with us as she has done for nearly thirty years, the gifted superintendent of one of the most important divisions of Woman's Christian Temperance Union work. She was heroic in her endeavor to secure for the youth of this land and all lands correct scientific teaching concerning the nature and effects of alcohol. These endeavors resulted in glorious achievement.

> "Tears are never for those who die,
> With their face to the duty done,"

and we know that her work, God's work, will go forward, and as the tide of time rolls on the truths she urged will receive wider and fuller recognition. At the same time that her "eyes were closing in the sleep that knows no dream," thousands of people in San Francisco were suffering from hunger and thirst. Fifty cents was readily paid for a glass of cold water, and the order was given and inforced that all bottles taken from saloons or groceries be broken, and that all alcoholic liquors be destroyed. This is but another forceful proof of that point for which Mrs. Hunt nobly contended, that alcohol is a poison, not a food, and not a safe beverage.

Mrs. Hunt's memory will be a perpetual strength to many who engage in the warfare against the ravages of strong drink. This must be so, for the work and the words of those who strive to purify and uplift, are immortal and eternal. Her heroic soul has passed on but her great work will live forever.

EXTRACTS FROM LETTERS AND TELEGRAMS

The officers of the World's Woman's Christian Temperance Union desire to express to you our sympathy and to all the relatives of Mrs. Hunt. We realize the enormous loss to our great cause which gained so much by her most efficient advocacy. We shall miss her bright inspiring presence at our approaching meeting in Boston, and shall deeply regret that when the World's Convention meets in her own city she will not be with us.—AGNES SLACK, Honorable Secretary, Ripley, Derbyshire, Eng.

One of the most brilliant and devoted leaders in our work has been taken from us, and we wish to record our sincerest appreciation of the great work she has achieved on behalf of scientific temperance instruction.—British Women's Temperance Association.

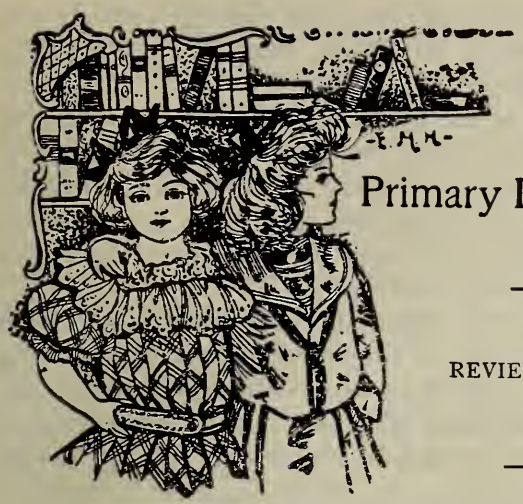
In common with all our White Ribbon Sisterhood, we experience a deep sense of regret and loss. We feel assured, however, that the memorial our dear sister would most desire would be that we prepare ourselves for the higher service into which she has entered, and carry on unfalteringly the work to which she devoted so many years of her life. In the little while of our tarrying, may God help us all to be true to the highest.—FLORA YORK MILLER, on behalf of the Ontario W. C. T. U.

The members of the Good Templar's Woman's Auxiliary Society desire to place on record their deep sense of the services rendered to humanity and to the cause of temperance by the late Mrs. Mary H. Hunt, and their appreciation of her devotion and self-sacrifice during her many years of effort to secure the teaching of temperance physiology in the public schools of America.

They rejoice that this noble woman lived to see the fruition of her labors in the adoption of a temperance instruction law in every state of the Union, and they assure her relatives and friends that their grief is shared by thousands of those who loved and revered the noble woman whose memory all must honor for her "work's sake."—JESSIE FORSYTH, President.

Irreparable loss. Great in mind, great in soul, great in heart, great in accomplishments. The blessing of her work will rest on untold generations of all races. With affection and admiration and as a pledge to support and maintain the work established by her, we lay this tribute at her feet.—New York State Central Committee for Scientific Temperance Instruction, ALFRED L. MANIERRE, Secretary.

I have known Mrs. Hunt for years and have been surprised again and again by her wonderfully comprehensive knowledge of all phases of the temperance question. Not alone had she the history of temperance legislation and effort in the past at her command, but she carried in her mind an exact remembrance of the present laws of each state and territory in the Union. When the scientific aspect of alcoholic poisoning was under discussion, she showed herself thoroughly conversant with the latest scientific judgments of the leading writers and experimenters in both Europe and America. Her knowledge of German thought at the universities was most complete. It was due to her that scientific temperance instruction which is doing so much good in the primary and grammar schools of all the states was introduced and continued. I hope that her friends will see that there is no decrease in zeal on their part to carry on her work now that she has gone to her well earned rest.—JAMES H. DARLINGTON, "The Bishop's House," Harrisburg, Pa.



Primary Lessons

REVIEW WORK

GAINING A HEALTHY BODY

A WRITER in one of the most notable of recent books says that the children of a nation are capable of expressing all the good or evil the world has known or may know. It is essentially a matter of opportunity and environment whether the children of today are to become physical wrecks and moral outcasts, or strong and noble men and women, fathers and mothers of virile sons and daughters.

No psychologist has yet been able to tell how much influence environment has upon the child, but it is certainly very great. Even the child of vicious parents has often a better ancestry not far behind him which wants only the right environment to reassert itself in his salvation. On the other hand, scarcely any child of even the best parentage but has some hereditary taint against which he must be armed lest temptation overtake him.

So the teacher, the child's greatest single environing influence except the parents, and sometimes exceeding even them, is endowed with high privilege and great responsibilities. This is especially true of the primary teacher, for statistics show that a large proportion of pupils entering the first primary year leave school forever at the end of the first year's work, and more yet never enter the fourth year. As these children are from homes where hygienic teaching is most needed and where old world drinking habits are often found, it is clear that what the teacher does not teach them of the dangers of alcohol and other narcotics they may never learn.

Probably most of the children think of President Roosevelt as one greatly to be admired. Tell them the story of his sickly childhood; how he realized that he could never accomplish much or even enjoy life if he could not gain a healthy body; and then explain how he determined to obey the rules of health, just such as they have been learning from their physiology lessons, and how at last he came to be strong and well because he took pains to live rightly.

Make the story as interesting as possible, and emphasize specially the points of hygiene most needed by the pupils of your school. Make it clear to them that had Mr. Roosevelt drunk alcoholic beverages and used tobacco when he was growing up he might never have come to be a well man and thus able to do the strenuous work which a president must do.

Point out, too, that while he was a feeble child but became strong through wise living, on the other hand, some other great men who were healthy as children became weak and died young leaving their life work unfinished because they disobeyed the laws of health. The following questions may be used in reviews:

REVIEW QUESTIONS

Why will the child who plays much outdoors grow faster and be stronger than the one who stays quietly indoors?

Which child will be healthier, one who sits and stands straight, or one who rounds his shoulders and stands awkwardly?

Why not eat unripe fruit, pickles, or much candy?

Why is cider harmful when ripe apples are wholesome?

Why ought the windows of our bedrooms to be open every night? Why should the beds have a thorough airing every morning?

What drinks hinder a child's growth? Why does not the boy who uses cigarettes grow as large and as strong as he should?

How often ought a child to bathe his face and hands? his entire body? How shall we care for the teeth? the nails?

What clothing is best suited for winter wear? for summer wear? Why is it bad for a child to wear wet clothing or to go with wet feet?

Why not wear rubbers in the house?

AUTHORITATIVE QUOTATIONS

BEER NOT A LIQUID BREAD

The terms "nourishing beer" and "liquid bread" are unscientific and false, for real bread, bought for the same price, contains more than 15 times as much nourishment, but—no alcohol. Milk is a food 30 times as reasonable and meat is from 10 to 15 times as reasonable as the best beer.—PROFESSOR VON PETTENKOFER, *Internationale Monatsschrift.*

TOBACCO AN INJURY TO THE GROWING BOY

Tobacco in any form is a great injury to a growing boy. A cigarette-smoking boy will not make a strong man.—DR. BARTHOLOW, Professor of Medicine, Jefferson Medical College, Philadelphia.

Grammar Lessons

REVIEW WORK

RESPONSIBILITY FOR OUR OWN LIVES

THE *Review of Reviews* gives a characteristic incident in the life of George F. Baer, a man who, because of his purity of life, remarkable industry, and his ambition and determination to achieve "something worth while," has steadily risen from the ranks till he is the leader of the coal operators in the great anthracite fields.

About twenty years ago Mr. Baer, then an attorney for a railroad company, and others were inspecting an unfinished trestle. As they walked out on the loose timbers over the dizzy heights, he hesitated and turned pale. The engineer in charge noticing his apparent nervousness, said, "Mr. Baer, if you feel at all nervous we can turn back." "No, I'll not turn back," was his deliberate reply, and as the engineer was about to urge against possible danger, he added, "My life is in the hands of—George F. Baer."

This reply reveals the determination, confidence, and self-control which are the key to his successful career.

It may also very properly serve as the central thought around which the teacher may group the essential features of the year's work in this branch.

Children are always interested in the stories of how men have achieved great success in spite of difficulties, and a short discussion of this man's career as illustrated by the incident quoted will hold their attention.

First, bring out the point that here as always, having selected the wise and proper course, he then decided to follow that course to the end, even though it might be contrary to his desires and require rigid self-control; and second, that his life was in his own hands to be made or marred as he himself chose.

Bring home to the members of the class their responsibility for their own lives. Bid each say to himself, "*My* life is in the hands of—myself. If it is to be a success instead of a failure, I must decide upon the right course and then follow it, no matter how much self-denial it may cost me."

What are the prime essentials in any line of endeavor? Point out that the man who succeeds must have a good character, a clear brain, and a healthy body, and that these qualifications will be more necessary in the future than they have ever been before.

Why is it so essential that foresight and self-control should be exercised during the growing period? How do people often undermine their health or become addicted to the use of tobacco or alcoholic drinks? Show that it is by saying "yes" to temptations, by carelessness in hygienic living, and by *beginning* the use of narcotics.

Emphasize the fact that it is the nature of alcohol and tobacco in common with all narcotics to destroy self-control, and that just here is one of the greatest dangers to health and future success. What effect do narcotic habits have on one's business prospects? one's health?

What cool drinks are better than beer and cider? Ask pupils to bring in recipes for refreshing summer drinks. The best may be written upon the board to be copied into note books. The teacher should be prepared to furnish others if necessary. Review points in hygiene most likely to be needed through the summer, such as suitable food and drink, dangers from eating stale food or milk, drinking ice water when overheated, need of outdoor life, treatment of wounds, poisoning from plants or mushrooms, apparent drowning, and sunstroke, emphasizing the ounce of prevention in each case.

REVIEW QUESTIONS

What is a real food? Why are alcoholic drinks not foods? What is the effect on the brain and nerves of drinking beverages containing alcohol?

How does the food we eat get to all parts of the body to form muscle, or brain, or bone?

What is the name of the little pump that sends the blood to all parts of the body? What are the two kinds of blood, and what is the name of the tubes carrying each?

How can one tell whether the blood from a wound is from an artery or a vein? How can bleeding be stopped?

How can we avoid alcohol poisoning? What is to be done when other kinds of poison have been taken?

What keeps the body warm? How can we prevent sunstroke?

What part of the body makes the food fit to enter the blood?

Why is it not correct to say that beer is a pure liquid food?

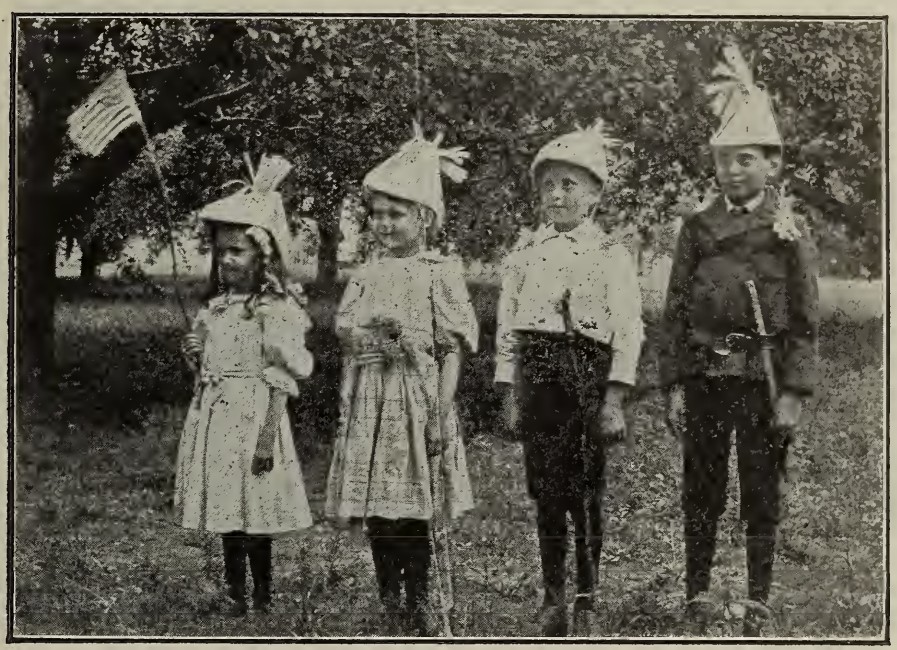
Why not take patent medicines?

Explain in what ways cigarettes undermine a boy's chances of success in business. Why does the boy who begins the use of cigarettes or tobacco in the lower grades almost never graduate from the high school?

AUTHORITATIVE QUOTATIONS

All this talk about the nutritive value, the strengthening and curative properties of alcohol, is nohting but a cloak the drinker employs for concealing his appetite. If people did not wish to drink, nobody would concern himself about the trifling nutriment claimed for alcohol.—P. J. Moebius, M. D., Leipsic.

Although the relation between the burning of alcohol and the burning of the nutritious substances in the animal organism has not been fully explained physiologically, this much is true, that alcohol taken however moderately is not to be classed among nutritious substances.—Adolf Fick, M. D., Univ. of Wurzburg.



The children are the hope of the temperance reform, and the public school practically reaches them all

The findings of exact science should be applied to practice. Science teaches that even small amounts of alcohol diminish executive ability.—*Der Alkoholismus*, 1904.

Alcohol is an insidious poison which has the power of insensibly causing degeneration of living tissues, deluding the brain while paralyzing its nervous energy, especially blunting the sensations.—A. Forel, M. D., Univ. of Zurich.

The daily observation of physicians teaches that the regular use of alcoholic drinks by children causes loss of appetite, injures the digestive organs and has a very unfavorable influence upon character and disposition. Besides, it brings on serious diseases, such as degeneration of the liver and brain. Experience teaches also that the habitual use of alcohol lowers the resistance of the body against infectious diseases.—*Der Alkoholismus*.

All the organs of the body are liable to participate to some extent in the deterioration wrought by alcohol. Whilst the nervous structures usually suffer earliest and most, the other tissues of the body, though it may be slowly, and with but few subjective or objective indications, undergo deterioration, and become the seat of disease, and not infrequently the sufferer and his friends are ignorant of the actual causation of the process hastening towards death.—T. N. Kelynack, M. D.

That alcohol acts inimically upon the heart, and may cause a grave lesion is now a recognized fact; but it is not so well known that a heart poisoned by this toxic agent is most insecure and exposes the patient to the risk of sudden death.—David Drummond, A. M., M. D., Senior Physician to the Royal Infirmary, Newcastle-upon-Tyne.

Alcohol is a poisonous matter, its venomousness increasing with the amount and frequency of the doses.—A. Forel, M. D., Univ. of Zurich.

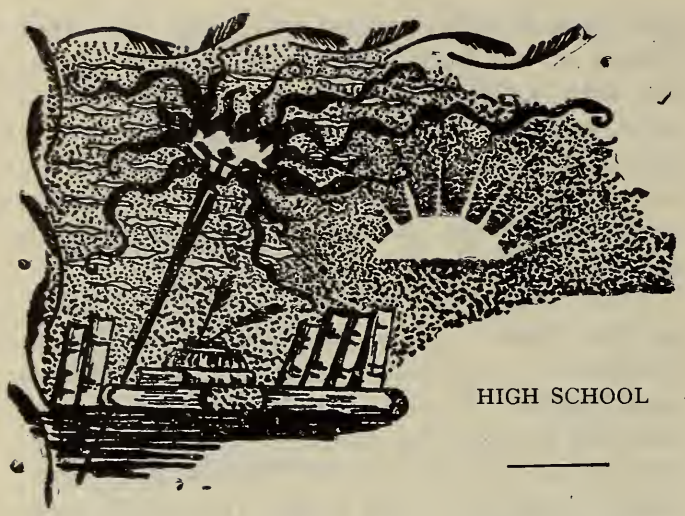
According to Von Ziemssen, "we possess no medicine which can act as a direct antidote to alcohol or neutralize its pernicious effects."—Dr. Hammond, in the *North American Review*.

The total work product obtained with the use of alcohol is less than that obtained without it.—E. Destree, M. D., Univ. of Brussels.

Most scientists, who have carried on experimental work on this question, have come to the conclusion that alcohol, even in moderate amounts, retards stomach digestion and in large amounts stops it entirely.—M. Helenius, in *Die Alkoholfrage*.

The use of tobacco has a peculiarly demoralizing effect on the moral nature of the young. In addition to making boys tired, stupid, and lazy, it makes them irritable and perverse, and careless of the rights and feelings of others, besides in many instances leading to lying, and even stealing.—E. Stuver, M. D., Ph. D.

It is said that the increasing mortality in the French army is largely due to pulmonary affections that are themselves favored by the general habit of cigarette smoking.—*Journal American Medical Association*.



HIGH SCHOOL

THE SCIENTIFIC VIEW OF ALCOHOL

ACCORDING to the *Hospital* (London), it is not overstating the matter to say that our grandfathers, lay and medical alike, regarded alcohol as the prime resource in cases of illness or injury. The idea is characterized as a "monstrous superstition" which is reluctantly but surely yielding to the light of modern scientific knowledge. A distinguished physician and writer, Dr. C. W. Saleeby, says that doctors were wrong and egregiously wrong on every specific point connected with the properties of alcohol, owing to the absence of the clinical thermometer and exact experimentation which left every point to be decided by the subjective sensations of those who took liquors.

Some of the fallacies which thus gained credence have been more hard to kill than others and these may be profitable examined in review work with advanced classes:

CURRENT FALLACIES

1—Alcohol is a stimulant to the heart and circulation.

2—Beers, wines, and other liquors "build up strength," give appetite and assist digestion, especially in the weak.

3—Alcohol increases intellectual strength.

4—Alcohol drunk in moderation is not dangerous.

ALCOHOL NOT A HEART STIMULANT

We have quite enough particulars for forming the general judgment that alcohol is an injury to the circulation.—GEORGE ROSENFELD, M. D., in *Zentralblatt fur innere Medizin*, March 24, 1906.

In the light of these experiments one is not only justified in denying to alcohol any stimulating power whatever for the heart, but on the contrary, in declaring that it lowers the working capacity of that organ."—JOHN J. ABEL, M. D. Johns Hopkins University.

The physiological action of alcohol is complicated by the fact that it is a pseudo-stimulant, that it seems to stimulate when it really narcotizes. The results of ten years of research by several of the leading physiologists of America classify alcohol as a narcotic poison and not as a stimulant.—WINFIELD S. HALL, M. D., Ph. D., Chicago, (1906).

ALCOHOL DOES NOT BUILD UP STRENGTH

Alcohol is useless in regard to muscular activity, and indeed hurtful in small quantities. It gives no additional energy, but it must give an additional amount of waste material to be excreted, and thus must add to a certain extent to the work of the excretory organs; it certainly interferes directly with them.—G. SIMS WOODHEAD, M. D., Cambridge Univ., England.

As a means of nourishment in the service of therapeutical dietetics, alcohol can no longer be considered.—RUDOLF ROSEMANN, in *Zeitschrift fur Dietetische and Physikalische Therapie* (1898).

Alcohol has been acclaimed as a stimulant of the digestion and appetite; yet any modern text-book on pharmacology will inform you that alcohol arrests digestion in measure proportionate to its concentration, and destroys appetite. C. W. SALEEBY, M. D., London.

Although alcohol contributes energy it diminishes working ability. We are not able to find that its energy is turned to account for nerve or muscle work. Very small amounts, whose food value is insignficant, show an injurious effect upon the nervous system.—MAX GRUBER, Pres. Royal Inst. of Hygiene, Munich (1905).

We must deny all stimulating effects to alcohol. The total working capacity after taking alcohol is always less than before. In the beginning, after taking alcohol, the digestive fluids are somewhat more copiously secreted, but finally they are greatly reduced.—SWIENTOCHOWSKI (1906).

In any case wine as a "strengthener" is a myth, or rather pure suggestion.—AUGUST FOREL, M. D., Univ. Zurich.

ALCOHOL DOES NOT INCREASE INTELLECTUAL STRENGTH

It has been proved by Kraepelin that intellectual work is reduced by the alcohol habit; especially is the critical judgment thus reduced.—BEHRENS, in *Alkohol and Kunst.*

Alcohol is not found by psychologists to in-

crease the quantity or vigor of mental operations; in fact, it clearly tends to lessen the power of clear and consecutive reasoning. In many respects its action on the higher functions of the mind resembles that of fatigue of the brain. —JOHN J. ABEL, M. D., Johns Hopkins Univ.

In all those vocations of life where keen senses, sharp attention, the ready and immediate action of clear judgment, or great concentration of the mind are called for, alcohol in any form or amount is injurious.—JOHN J. ABEL, M. D., Johns Hopkins University.

Alcohol is a strong and dangerous poison. It can not possibly, as was formerly supposed, be substituted for food. No relish should contain alcohol. Abstinence is the only proper and normal course in the face of such a dangerous poison.—W. PFAFF, M.D., in *Der Alkoholismus*, 1904.

"A happy world this is.
For life is love, the world is love, and love is over all."

ALCOHOL IN MODERATION IS UNSAFE

Scientific investigation has established the fact that even a moderate use of alcoholic beverages impairs the acuteness of sight and hearing, including the power of distinguishing colors.—*Deutsche Monatsschrift.*

It has been proved that prudence, judgment, clearsightedness, and a sense of duty are vitiated by nothing so readily and to such a degree as by alcoholic drinks.—*Deutsche Monatsschrift.*

Now every one will understand why France, the drinker of wine has become a drinker of spirits; it is because they are inseparable and the one leads to the other.—DR. LEGRAIN in *Les Annales Antialcooliques.*

SELF-CONTROL, by William George Jordan. $1.00 net. Fleming H. Revell Co., New York.

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THE VEST-POCKET STANDARD DICTIONARY, James C. Fernald, editor. Cloth, 25 cents. Funk & Wagnalls Co., New York.

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